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ADM-87-253 271-m-8224
AIDS Outreach to Female Prostitutes and Sexual Partners of Injection Drug Users

EXECUTIVE SUMMARY

Purpose: Between the summer of 1988 and the end of 1990, programs in Bridgeport, Connecticut, Juarez, Mexico, and San Juan, Puerto Rico sought out female prostitutes and female partners of injection drug users (IDUs) thrugh a range of community-based outreach strageties and enrolled them in interventions designed to help them reduce their risk for HIV infection and AIDS. This was one of NIDA's AIDS Targeted Outreach Models (ATOM) projects, and the contractor was charged with reaching two specific populations: female prostitutes (both IDUs and non-IDUs) and the female sexual partners of IDUs (who were not themselves IDUs). The project aimed simultaneously to provide needed services in community-based settings and to answer important research questions regarding the outreach and intervention strategies used with the target population.

Methodology: The research involved gathering sociodemographic, behavioral, and program participation data on cleints and evaluating the impacts of the program's interventions in producing positive change in clients' drug-related and sexual behaviors. Each site evolved its own approach to outreach and intervention, and some strategies proved to be more effective than others.

Findings:

o Outreach to sexual partners, using direct contact with male IDUs in the community, was an approach that worked in Juarez. Direct approaches to sexual partners in housing projects worked best in San Juan.

o Prostitute outreach in Juarez was most successfuly carried out in bars and brothels, rather than on the street. In Bridgeport, word-of-mouth referrals were useful in drawing prostitutes to a field office.

o Altogether, 2,541 women were contacted, 1,661 received the initial survey, and 1,103 also completed the followup survey for a followup capture rate of 66 percent.

o Six hundred eighteen women were tested for HIV, the overwhelming majority in San Juan, where counseling and testing were centerpieces of the intervention. Seropositivty rates were 11 percent (65 of 586 women tested) in San Juan and 15.6 percent (5 of 32 women) in Bridgeport. Rates were higher by far among IDU prostitutes (33.3%) as compared with non-IDU prostitutes (9.1%) and sexual partners (8.3%).

o In all three sites, women who were active participants in the intervention completed the followup interview more frequently

than did those who were passive participants. Active participants were defined as those who had one hour or more of total intervention time, as well as more than one intervention episode.

Recommendations:

- Intervention can be measured not only by number of contacts but also, perhaps more fruitfully, by total contact time.

- Outreach strategies and interventions need to be tailored to the communities in which they are conducted. For example, 'outreach to sexual partners, using direct contact with male IDUs in the community, was an approach-that worked in Juarez, while direct approaches to sexual partners in housing projects worked best in San Juan.

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AIDS OUTREACH TO FEMALE PROSTITUTES AND SEXUAL PARTNERS OF INJECTION DRUG USERS

FINAL REPORT TO NIDA

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March 13, 1992

Prepared for:

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AIDS OUTREACH TO FEMALE PROSTITUTES AND SEXUAL PARTNERS OF IV DRUG USERS

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Introduction

Between the summer of 1988 and the end of 1990, programs in Bridgeport, Connecticut, Juarez, Mexico, and San Juan, Puerto Rico sought out female prostitutes and female partners of injection drug users (IDUs) through a range of community-based outreach strategies, and enrolled them in interventions designed to help them reduce their risk for HIV infection and AIDS. This was one of NIDA's AIDS Targeted Outreach Models (ATOM) projects and was carried out under a contract with Abt Associates Inc., a social policy research firm based in Cambridge, Massachusetts. In this project, we were charged with reaching two very specific populations: female prostitutes (both IDUs and non-IDUs) and the female sexual partners of IDUs (who were not themselves IDUs).

As in all the NADWATOM projects, this project aimed simultaneously to provide needed services in community-based settings and to answer important research questions regarding the outreach and intervention strategies used with the target populations. The research involved gathering socio-demographic, behavioral, and program participation data on clients and evaluating the impacts of the programs' interventions in producing positive behavior change in clients. The behaviors of interest were primarily needle-related behaviors (use, sharing, and cleaning) and sexual behaviors (numbers of sexual partners and frequency of condom use).

Abt's approach to the service delivery component of the project was to subcontract with organizations in each of the three sites, giving those organizations broad latitude within the overall guidelines of the project design to formulate, refine, and implement outreach and intervention programs they believed were best suited to their communities. The three subcontractor organizations were: the Bridgeport Women's Project (originally operated under the auspices of the Greater Bridgeport AIDS Project, but subsequently incorporated as a stand-alone non-profit community organization); the United States-Mexico Border Health Association (an adjunct of the Pan American Health Organization's El Paso field office), which operated Proyecto Compañeros in Juarez; and the Puerto Rico Department of Anti-Addiction Services (the Commonwealth of Puerto Rico's substance abuse agency), which operated Proyecto Tu, Mujer in San Juan.

As shown in Figure 1, each site evolved its own approach to the outreach and intervention, crafted to achieve the greatest efficiency in reaching women and enrolling them in program and research activities. This was, inevitably, a trial-anderror process. Abt's original proposal to NIDA described a staged program in which women would attend open informational sessions on AIDS and then those motivated to do so would be enrolled in a series of closed support groups aimed at encouraging, supporting, and maintaining behavior change. The outreach strategies were not described in detail in the

Figure 1

Principal Outreach and Intervention Strategies Used in the Three Project Sites

SITE	OUTREACH	INTERVENTION
BRIDGEPORT	"Walk-ins" to storefront office; many based on word-of-mouth self-referral	Peer-based support; crisis intervention and referral; flexible and informal style
JUAREZ	Outreach in bars, brothels, on street, and in homes; also educational sessions in factories and schools; direct outreach in jails and juvenile detention facilities	Structured curriculum-based series of group meetings; also informal counseling and support as needed
SAN JUAN	Outreach on streets (prostitutes, early in project); outreach in housing projects (community centers and individual apartments) (sexual partners)	HIV antibody testing with pre- and post-teat counseling; brief group educational sessions; informal counseling and support as needed

proposal, but significant reliance was placed on being able to contact male IDUs in drug treatment programs and induce them to refer their female sexual partners to the intervention project. Prostitute outreach was expected to focus on direct contact in stroll areas.

In point of fact, major portions of the planned approach could not be implemented. Outreach to sexual partners working through male IDUs in treatment was a categorical failure in the two sites that tried this approach (San Juan and Juarez). The men were simply unwilling to refer their sexual partners, and the women generally did not wish to be contacted directly by the programs during the limited time they had to visit their partners at the treatment programs. As described below, outreach to sexual partners, using direct contact with male IDUs in the community, was an approach that worked in Juarez, while direct approaches to sexual partners in housing projects worked best in San Juan.

Prostitute outreach in Juarez was most successfully carried out in bars and brothels, rather than on the street. The Bridgeport project, by contrast, set up its office in the midst of a major stroll area and was able to attract many clients through simple "walk-ins" and word-of-mouth referral. This was supplemented with direct street outreach.. In San Juan, prostitute outreach was limited to the first few months of project activities, and was conducted primarily in the parks and on the streets of the Old San Juan area.

Of the three sites, only Juarez made extensive use of the closed support group model. This site was successful in enrolling many women in its structured series of four weekly group sessions based on a written curriculum. In Juarez, while many of the clients suffered from serious problems of poverty and social dysfunction, few were heavy drug users. Their lives, while not by any means trouble-free, were not generally disrupted by their own addictive behaviors. Juarez groups were held in clients' homes, in bars and brothels, in the jail, and in the project office.

In the other two sites, the structured group approach did not work. In San Juan, talleres, or informational workshops were held in the housing projects, but these were primarily single-session, and rarely two-session activities. The main focus of the San Juan intervention was pre- and post-HIV test counseling, which was generally of great interest to clients. HIV counselling and testing services were not conveniently available to many of these women prior to the arrival of the NIDA-funded program. In Bridgeport, many of the clients were so troubled and led such disordered lives, often due to crack addiction, that it was essentially unfeasible to get them to attend a series of regular group meetings. By necessity, in Bridgeport, the staff focused on crisis intervention, individual counseling, and referrals to housing, medical care, drug treatment, and other services. Only when a client had achieved some basic stability in her life did it make sense to offer any significant information on HIV/AIDS risk reduction.

Thus, a major formative influence in the intervention strategies evolved by the three sites was the situation and condition of the client population. The degree of stability and capacity to keep appointments and meet the regular demands of life drove many decisions regarding the format and location of intervention services. The characteristics of the sites' staffs also influenced the programs developed. In Juarez, almost all of the staff had professional training in counseling,, social work, or related fields, and were thus well-prepared to develop and deliver a more structured curriculum-based program. In San Juan, some of the staff, including the site coordinator, had professional training in psychology, social work, and nursing, but the outreach staff were primarily indigenous workers, several of whom were recovering addicts and former prostitutes. Finally, in Bridgeport, none of the staff had professional training directly related to the work of the project. Most were indigenous workers. Thus, their approach emphasized peer counseling and crisis intervention services. Most Bridgeport staff were able to say with honesty to their clients: "I've been through this myself and I know how you must feel. "

As noted, Abt gave the sites substantial discretion in the development and implementation of their outreach and intervention strategies. Abt staff also provided support and assistance in implementing the research components of the project: training in AL4 and AFA interviewing and completion of the process data collection forms. Because of these major substantive differences in approach and obvious cultural differences, site data were never combined in analyses,

Community-based projects which attempt both to provide services and conduct research face tensions between the two components. This was certainly the case in the sexual partners/prostitutes project. Particularly where the majority of staff were indigenous workers without professional training, there was resistance to the research activities. Some staff wondered why they had to conduct interviews and collect process data when the time could be used to provide services to women in need in their communities. This is an important and, in some ways; troubling question which Abt staff had to address repeatedly during the project. In these discussions with staff, we emphasized that we understood and appreciated their concern for the women of their community -- indeed, this concern is what made them so good at what they were doing -- but also stressed the value of having data with which to evaluate the programs* services. Without systematically and accurately collected data, we explained, it would be impossible to document the services provided and to assess the impact on clients' lives of the services provided. In addition, we noted, evaluation results may be important in securing followup funding for the projects once the NIDA support ended. We believe that we were at least partially successful in convincing site staff of the importance and value of research, but the tension between services and research is inevitable and will probably remain endemic in projects of this sort.

Abt also attempted to address personnel issues at the sites if they reached serious proportions. However, our approach was to intervene only in an emergency. Otherwise, we believed that it was important for the projects to resolve internal issues internally.

This report presents the final results of the project. Based on information provided in matched AIA and AFA interviews, we conclude that many clients achieved positive, risk-reducing behavior change over the six month followup period. However, our analyses are unable to attribute this positive behavior change clearly to program interventions. Possibly, the absence of demonstrable program effects is more reflective of baseline levels of dysfunctionality among clients and problems with the data collection instruments than shortcomings of the interventions. Indeed, anecdotal evidence suggests that the three projects have had positive effects on the lives of many women in these communities, helping them to bring some order and purpose to their troubled lives, and to develop enhanced self-esteem and power to control their own relationships.

Moreover, we believe that this project has had a number of beneficial effects apart from the progress its clients have been able to achieve. A great deal of data have been gathered which expand our knowledge of these two target populations -- sexual partners and prostitutes -- which are both important to reach if the HIV/AIDS epidemic is to be brought under control. These data, and the experiences of these three sites, should help other programs understand what works and what does not, in terms of outreach and intervention strategies for these populations. Finally, the experience of working in these projects appears to have been extremely beneficial to the staff members themselves. Many of the individuals hired for these sites were recovering addicts and former prostitutes. While some, inevitably, experienced relapse and had to be dismissed, the vast majority persevered, learned, and grew tremendously on the job. In helping others to become more responsible, functional, and independent human beings, they were also able to develop and enhance the same qualities in themselves. Indeed, it would seem that a legacy of the NADWATOM programs is a large group of highly motivated, trained, and capable community workers ready and willing to address a variety of problems in their neighborhoods and cities. It is to be hoped that this valuable human resource will be put to use as the fight against AIDS, drugs, and other serious social problems continues into the 1990s.

1.0 Summary of Outreach Results

The above achievements are difficult to quantify. However, the projects did generate a great deal of quantitative and quantifiable data, and it is these data that the major part of the report must address. Figure 2 summarizes the outreach results of the three sites for the entire project. Altogether, 2,541

Figure 2

All **Three Project Sites**

SUMMARY COUNTS OF PROJECT DATA

	Juarez Mexico	Ban Juan Puerto Rico	**Bridgeport** Connecticut	**Total**
Initial Contacts	935	762	844	2,541
AIA Interviews	438	649	574	1,661
AFA Interviews	297	494	312	1,103
Intervention Participants	**382**	**614**	**211**	**1,207**
Overall **AIA-AFA Follow-up** Rate (%)	**67.8%**	**76.1%**	**54.3%**	**66.4%**
Number of Women Tested for HIV Antibody Through Project:				
HIV Tests	**0**	**586**	**32**	**618**
Number of HIV Positive	**N/A**	65	5	70
Percent HIV Positive	**N/A**	11.1%	15.6%	11.3%

women were contacted; 1,661 AIAs were administered; and 1,103 of these women also completed AFA interviews. The followup capture rate (AL4 to AFA) was 66 percent, quite high for projects working with this type of population. San Juan's AFA followup rate was over 75 percent, while Juarez's was 68 percent and Bridgeport's 54 percent. The-se variations appear to reflect differences in the overall stability of the target populations in the three cities.

Across all three sites, 1,207 women participated in program interventions (see below, for a definition of program participation). Six hundred eighteen women were tested for HIV antibody, the overwhelming majority in San Juan, where counseling and testing were centerpieces of the intervention. Seropositivity rates were 11 percent in San Juan and 13 percent in Bridgeport. (These rates may be deceptive, however, in that a number of clients, particularly in Bridgeport, had already been tested and declined the testing offered by the projects.) No clients were tested through the Juarez project.

Figure 3 shows the distribution of AL4 interviewees by target population in me three sites. Bridgeport and Juarez interviewees were primarily prostitutes -- by a 70-30 margin over sexual partners. However, in Bridgeport, one fourth of all AM interviewees were IDU prostitutes while, in Juarez, this category accounted for only 2 percent of women interviewed. While prostitutes predominated in Bridgeport and Juarez, both sites also reached a significant number of sexual partners.

In San Juan, the distribution was different. There, almost 90 percent of all interviewees were sexual partners. These differences reflect the outreach strategies employed in the sites. A sizable proportion of Bridgeport's recruitment represented walk-in traffic from the stroll area in which the project office was located. Juarez conducted a great deal of outreach in the city's bars and brothels. The San Juan project, by contrast, did prostitute outreach in the Old San Juan area during the first few months, but soon switched to a strategy based on direct outreach to sexual partners in housing projects. Very few prostitutes were recruited through this strategy.

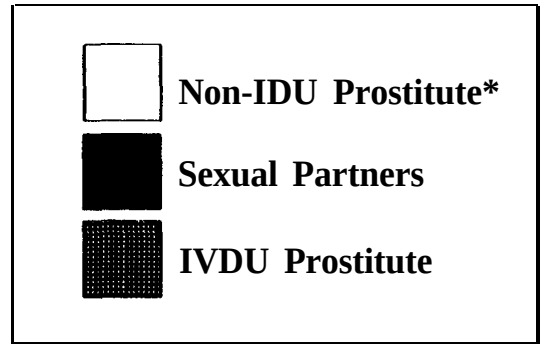
2.0 sources of Data

The analyses presented in this final report were based on both qualitative and quantitative data. Qualitative data came from site visits, project logs and progress reports, client and staff testimonials, narratives contained in process data forms, and other materials. Quantitative data were from three sources: AIA interviews, AFA interviews, and process data collected on forms designed by Abt Associates.

The process system consisted of data collected from initial contact through all program participation. The process data were compiled for each client by study identification number, using a

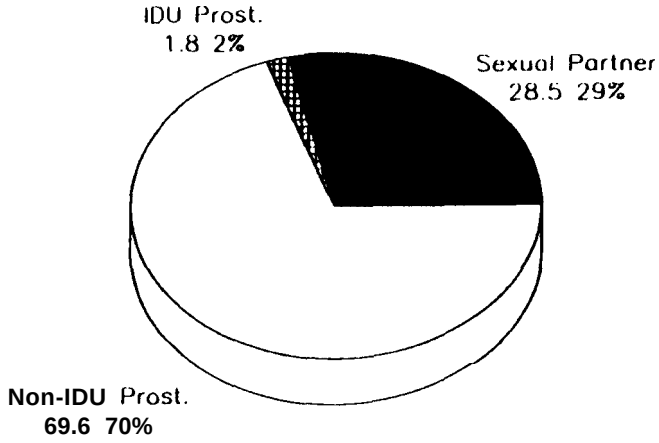
Cumulative AIA Interview (3 years) Target population Distribution

Figure 3

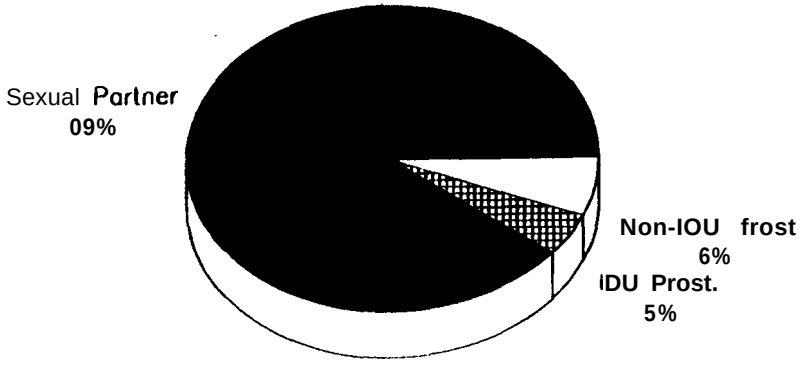


*Non-IDU Prostitutes includes "Others", primarily very small numbers of tranvestites

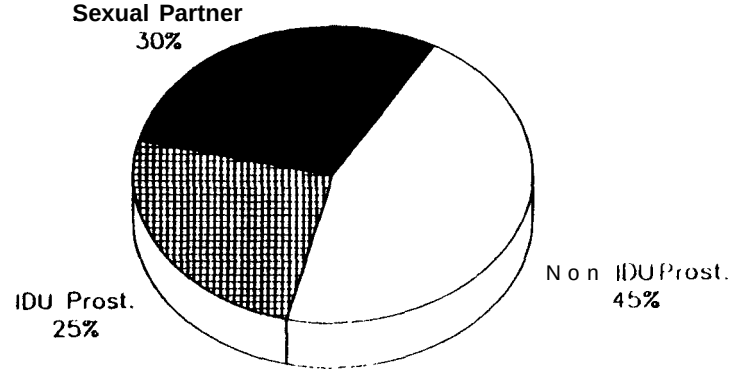
Juarez
N=438



San Juan
N=649



Bridgeport
N=574



series of forms filled out at varying junctures of clients' interaction with the program: initial contact, followup, individual counseling, and group interaction forms. The Initial Contact Sheet was filled out in the field when an outreach worker encountered a person potentially eligible for participation in the project. This sheet could be filled out at the time of the encounter or shortly afterward, and included demographic data on the person reached, location of the encounter, services sought, referrals made, and sources of AIDS information. Only contacts of a few minutes or more in which the worker actually spoke to the individual were to be reported.. Contacts involving simply handing out a condom or pamphlet were not to be recorded on initial Contact Sheets. A unique project identification number and an identifier name (street name) was assigned on the contact sheet. This number became the number used in ail subsequent data collected on this individual, including the AIA and AFA.

In addition to the Initial Contact Sheet, each program recorded all subsequent contacts with the client through separate reporting forms: Counseling Form, Group Form, Encounter Form. Each form used the identification number established at contact and detailed the interaction which took place: duration, type, content, services provided, supplies given, and referrals made. This system resulted in a timeline of events for each person contacted in the project from street outreach to completion of the AFA. All data were recorded at the programs, returned to Abt, entered into a data system, and eventually merged with AIA/AFA data by client identification number for final outcome analyses. These process data provided the critical link between the AIA and AFA boundaries by documenting what and how much intervention each client received. They also reveal systematically where most of the outreach was concentrated and what time periods were the most fruitful for recruitment.

Naturally, for many women contacted, there existed only an Initial Contact Sheet or only an Initial Contact Sheet and an AIA. These situations represented two different categories of non-participation. However, for many other women, there was a rich detail of their interactions with the programs during the three years of operation, helping to illuminate that critical "black box" between baseline and followup self-reports of behavior.

The process data were maintained in a Dbase III+ computer system separate from the AIA/AFA data, but all interview and process data were later merged into client-level SPSS analysis files by means of a program written by Abt in the C language. These data management strategies have been described

by Abt in interim project reports to NIDA and in presentations at NADR annual meetings.[1] The final merge file consisted of four elements:

2.1 Women with Data from the Initial Contact Sheet (N=2,541)

These were women who were contacted in outreach, some of whom went on to complete AIA interviews while others had no further contact with the project. All women contacted, whether they were subsequently interviewed or not, have Initial Contact Sheet data: age, race, living situation, number of children, sources of information about AIDS, and target population.

2.2 Women Who Completed AU Interviews (N=1,661)

These represented all the women among those initially contacted by the projects who were eligible for the study and completed AIA interviews.

2.3 Participants in Interventions (N= 1,207)

These were all women with AIA interviews who subsequently participated in intervention activities totalling at least one hour. The one-hour criterion for participation was adopted after careful examination of actual patterns of participation. We found that most women with less than one hour of contact time had often simply stopped by the project office to pick up prevention supplies or to have a brief conversation with staff, while those with an hour or more were more likely to have had a counseling session or some other more significant interaction with the project. Data on all of each client's participation events (type, content, date, duration) were recorded in the process data system.

2.4 Women Who Completed Both AIA and AFA Interviews (N=1,103)

These were the women who completed both the baseline and followup interviews and included both participants and non-participants as defined above. Files for participants and non-participants consisted of interview data and all process data. Typically, process data on non-participants were limited to the Initial Contact Sheet.

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[1] Sharon Teitelbaum, "Process Evaluation Data System," in "AIDS Outreach to Female Prostitutes and Sexual Partners of Intravenous Drug Users: First Annual Report," June 8, 1989, pp. 76-79; S. Teitelbaum, "AIA/Process/AFA Analysis on a Personal Computer: One Approach," presented at Second Annual NADR Meeting, Bethesda, Maryland, November 30, 1990.

These four data sources also represented transition points in the program at which participation and "capture" rates were analyzed. Using these data sets, we were able to examine who participated and dropped out during each interval: from initial contact to AIA; from AIA to program participation; and from **AIA** to **AFA.**

3.0 Site Summaries

Before presenting the analyses of participation and outcome, we offer summary descriptions of each project site, including characteristics of the target populations reached, outreach and intervention strategies, and patterns of participation in interventions. These sections also include anecdotal information, in the form of **mini-case** studies on selected clients of each project.

3 . 1 Bridgeport Women's Project

The Bridgeport Women's Project **(BWP)** is located in one of the nation's poorest cities. A city with a once-thriving economy based on industry and seaport trade, Bridgeport has serious problems with unemployment, crime and drug use. When the AIDS project began in 1988, the city of Bridgeport was in receivership, making access to city services almost impossible for the community- based staff which evolved in this demonstration effort.

3.1.1 Description *of* the Target Population

Figure 4 shows that the Bridgeport-Women's Project contacted 844 women during slightly over 1/2 years of outreach. Of these contacts, 13 percent were IDU prostitutes, 36 percent were non-IDU prostitutes (many of these were crack users), and 24 percent were sexual partners of **IDUs. AIAs** were completed on 574 women and 312 completed **AFA** 'interviews. Thus, the **followup** rate from AIA to AFA was 54 percent overall in Bridgeport. Of the 574 AIA interviewees, 211 subsequently participated in one hour or more of intervention activities. This relatively low capture rate of **37** percent was due in part to the highly mobile and unstable state of the target populations in Bridgeport.

Only 32 HIV antibody tests were conducted; five of these women (16%) were seropositive. The seropositivity rate was much higher among IDU prostitutes than in other subsets of the target population. The project also served many HIV-positive women reflected in these figures.

Figure 5 summarizes sociodemographic data on AIA interviewees in Bridgeport. In terms of racial and ethnic background, two-thirds of interviewees were black and roughly equal proportions were white and Hispanic. Blacks were particularly predominant among non-IDU prostitutes, while almost 40

Figure 4

Project Site: Bridgeport, CT

SUMMARY COUNTS OF PROJECT DATA

	Sexual Partners of IDUs	Non-JDU Prostitutes [a]	IDU' Prostitutes	Other [b] Unspecified	Row Total
Initial Contact Forms	204 (24%)	302 (36%)	108 (13%)	230 (27%)	844 (100%)
AIA Interviews	170 (30%)	260 (45%)	144" (25%)	0	574 (100%)
Paired AFA Interviews [d]	91 (29%)	153 (49%)	68 (22%)	0	312 (100%)
AIA-AFA Follow-Up Rate	54%	59%	47%	N/A	54%
Participants [e]	55 (26%)	98 (46%)	58 (28%)	0	211 (100%)
HIV Tests					
- Number of women tested for HIV antibody through the project	12	11	9	N/A	32
- Number HIV positive	1	1	3	N/A	5
- % HIV Positive	8.3%	9.1%	33.3%	N / A	15.6%

[a] Hierarchical categorization: Prostitute status takes precedence over sexual partner status. Thus, the prostitute categories include women who are also sexual partners of IDUs.

[b] "Other" represents those women whose target group membership was unknown at the time of initial contact, or who failed to meet the criteria for inclusion in the study. Ineligible contacts include IDU women who are not prostitutes and community contacts such as "gatekeepers".

[c] Number of AIAs is larger than number of initial contacts, due to incomplete documentation of initial contacts,

[d] Includes only AFAs done 4-9 months after the AIA interview. Includes only AFAs done on persons who completed AIAs.

[e] Participants are defined as those taking part in intervention activities totaling one hour or more subsequent to AIA.

Figure 5

Project Site: Bridgeport, CT

DEMOGRAPHIC CHARACTERISTICS OF AU INTERVIEWEES, BY TARGET POPULATIONS

Demographic characteristic	Sexual Partners of IDUs (N=170) (%)	IDU Prostitute (N=144) (%)	Non-IDU Prostitute (N-260) (%)	ENTIRE SAMPLE (N=574) (%)
Race:				
Black	65.9	45.1	78.8	66.6
Hispanic	23.5	15.3	10.8	15.7
White	8.2	38.9	9.6	16.6
Other/unknown	2.4	0.7	0.8	1.2
Age:				
13-19	2.4	0.0	3.8	2.4
20-29	48.8	37.5	58.1	50.2
30-39	41.8	50.0	34.2	40.4
40-49	6.5	11.1	2.7	5.9
50-51	0.6	1.4	1.2	1.0
Highest Level of Schooling:				
No formal schooling	0.0	0.0	0.0	0.0
Grade 1 - 8	7.6	6.9	10.4	8.7
Grade 9-l 1	46.5	57.6	52.7	52.1
Grade 12	31.8	20.1	27.7	27.0
Some college	14.1	15.3	9.2	12.2
Living Situation:				
Own house/apt.	44.7	19.7	16.9	26.0
Someone else's house/apt.	45.3	57.0	57.5	53.7
Rooming/boarding house	5.3	14.1	9.8	9.5
Shelter/welfare home	2.9	0.7	4.7	3.2
On the streets	1.8	8.5	11.0	7.6
Current Work Situation:				
Regular full-time work	7.1	3.5	2.7	4.2
Regular part-time work	5.3	4.9	3.8	4.5
Occasional work	4.1	4.2	5.0	4.5
Not working	83.5	87.5	88.5	86.8

Figure 5 (cont'd.)

Project Site: Bridgeport, CT

DEMOGRAPHIC CHARACTERISTICS **OF AIA INTERVIEWEES, BY TARGET POPULATIONS**

Demographic characteristic	Sexual Partners of IDUs (N = 170) (%)	IDU Prostitute (N = 144) (%)	Non-IDU Prostitute (N = 260) (%)	ENTIRE SAMPLE (N = 573) (%)
Relinion:				
Catholic	36.5	42.4	20.4	30.7
Protestant	55.9	50.0	68.5	60.1
Other/None	7.6	7.7	11.2	9.2
Child Care/Support (parents only):				
External Support/Care	50.5	51.4	62.7	55.1
No Support	49.5	48.6	37.3	44.9
Number of Dependent Children Under Ane 12:				
0	4.7	6.9	2.3	4.2
1	18.8	11.1	12.7	14.1
2	20.0	4.9	7.7	10.6
3	7.6	1.4	4.6	4.7
4	3.5	0.0	1.2	1.6
5	1.2	0.0	0.4	0.5
6	1.2	0.0	0.0	0.3
Non-Parent	42.9	75.7	71.2	63.9

Source: Abt Associates, AIA Interviews

[a] "Other" includes missing values and values with few responses.

percent of the IDU prostitutes were white and almost one-fourth of the sexual partners were Hispanic. The vast majority of women in all subsets of the target populations were between 20 and 39 years old. Almost 40 percent of the women were high school graduates, and 12 percent had at least some college. Only about one-quarter of the women had their own homes or apartments. Almost half of the sexual partners had their'own place to live, but the prostitutes were much more likely to be living at someone else's apartment, in a shelter, or on the street. Overall, 8 percent of the Bridgeport interviewees said they were living on the streets.

Very few of these women reported having regular jobs, either full- or part-time. Almost 60 percent of sexual partners had at least one dependent child under age 12, while the prostitutes were less likely to have children. A surprisingly large percentage of the Bridgeport interviewees (55%) reported having external sources of child care and child support.

The troubled lives of the BWP's clients come more sharply into focus when we examine their patterns of drug use, shown in Figure 6. Over half of the entire group of interviewees reported abusive use of crack -- fully three quarters of non-IDU prostitutes reported such levels of crack use. Over 15 percent of sexual partners interviewed reported abusive use of crack, as did over half of the IDU prostitutes. Other drugs were reportedly not abused by as many of the women: 21 percent in the case of both cocaine and heroin. In general, however, the rates of drug abuse were far higher among interviewees in Bridgeport than in the other two cities.

3.1.2 Outreach

The staff of the BWP was multi-ethnic, well representing the elements of the community. They were predominantly female and included recovering addicts. The office was in a storefront near the central business district and in a well-known prostitutes' "stroll area". The BWP recruited many clients who were walk-ins and "word of mouth" references, but staff undertook extensive community outreach as well. They conducted outreach both in teams of two in dangerous areas and singly in other parts of the community. Outreach staff put up project posters all over Bridgeport and talked with women at welfare offices, parks, and other places throughout the city. In her project log, an outreach worker recorded a typical afternoon of community outreach:

> [I] went out to do outreach with Stan and Yvonne. [we] stood in Washington Park for awhile [and] did a few contacts. But things there are hard. [There is] drug dealing [and] a bunch of guys just going off. Everything went pretty well. [We then] walked to Toyo's supermarket (hot spot on East Main Street) and [we] talked with a few girls and also walk[ed] down the stroll

Figure 6

Project Site: Bridgeport, CT

SELF-REPORTED DRUG USE AMONG AIA INTERVIEWEES, BY TARGET POPULATION

Level/Intensity of Use in Past 6 Months [a]	Sexual Partners of IDUs (N=170) (%)	IDU Prostitutes (N=144) (%)	Non-IDU Prostitutes (N=260) (%)	ENTIRE SAMPLE (N = 574) (%)
Marijuana:				
No use	52.9	41.5	39.0	43.8
Low level	40.6	49.3	48.6	46.4
Abusive use	6.5	9.2	12.4	9.8
Crack cocaine:				
No use	65.3	28.4	14.3	33.0
Low level	18.8	19.9	11.2	15.6
Abusive use	15.9	51.8	74.5	51.4
Cocaine (injected and/or non-injected):				
No use	58.2	18.8	41.9	40.9
Low level	35.9	34.7	40.4	37.6
Abusive use	5.9	46.5	17.7	21.4
Amphetamine (injected and/or non-injected):				
No use	98.2	84.7	89.2	90.8
Low level	1.2	9.7	7.7	6.3
Abusive use	0.6	5.6	3.1	3.0
Heroin (injected and/or non-injected):				
No use	92.9	15.3	83.8	69.3
Low level	2.4	16.7	9.6	9.2
Abusive use	4.7	68.1	6.5	21.4

Figure 6 (cont'd.)

Project Site: Bridgeport, CT

SELF-REPORTED DRUG USE AMONG AIA INTERVIEWEES, BY TARGET POPULATION

Level/Intensity of Use in Past 6 Months [a]	Sexual Partners of IDUs (N=170) (%)	IDU Prostitutes (N=144) (%)	Non-IDU Prostitutes (N=260) (%)	ENTIRE SAMPLE (N=574) (%)
Heroin & Cocaine (injected and/or non-injected): (speedball)				
No use	95.3	27.3	89.2	75.5
Low level	2.4	15.4	6.2	7.3
Abusive use	2.4	57.3	4.6	17.1
Tranquilizers (injected and/or non-injected):				
No use	92.9	69.4	86.5	84.1
Low level	4.7	25.0	10.4	12.4
Abusive use	2.4	5.6	3.1	3.5

Source: AIA Interviews

[a] The level/intensity of use categories here are derived from frequency of use responses to the AIA drug questions. Abusive vs. low use for any particular drug was established based upon the Addiction Severity Index.

(Kossuth Street), down to East Main Street liquor store. [we] made a few more contacts. [We] got separated but everything was okay. My feet are killing me, but [I] feel good about it at the same time.*

Staff also explored indirect avenues of outreach, through agency referrals and local events. They worked on improving ties with several of the city's social service agencies. In exchange for referrals, staff conducted AIDS training for agencies which might encounter young women at high risk for HIV infection.' On several occasions, BWP staff joined these other agencies in presenting special events, such as health fairs for community residents.

Reaching both prostitutes and sexual partners of IDUs was difficult for staff. Initially, they thought that the housing projects would be ideal locations for recruiting sexual partners, but many problems arose. The projects, such as Father Panik Village and P.T. Barnum, are extremely dangerous sites for outreach. One-half to two-thirds of the units are burned out. Although these units are officially vacant, most of them harbor squatters, heroin "shooting galleries," and crack houses. In a log entry, a staff member noted, "[t]he environment [of Father Panik Village] is tilled with hostile, inhospitable and deplorable conditions, with drugs, robberies and firearms everywhere."' Project staff overcame these conditions to conduct outreach, and sometimes ALA interviews in the community.

Because of the danger involved in conducting outreach, experienced and well-connected outreach workers were a necessity. Outreach in the housing projects was usually conducted by the BWP's two most seasoned staff, who are known, respected, and trusted by the community.

In this site, staff were unsuccessful in their attempts to reach female sexual partners using male sexual partners as initial contacts. As a rule, the men did not relay project information to their partners. in order to reach these women, staff revised their outreach strategies. Instead of working through the male IDUs, they tried to contact the women directly in the housing projects. However, they encountered some resistance among the women. Sexual partners did not want to be associated with prostitutes and were apprehensive about coming to the same project.[5] Thus, as will be described below, BWP staff contacted numerous sexual partners, but capture rates for AIAs and interventions in this target population were somewhat lower than for prostitutes.

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[2] Maria Martinez, Bridgeport Women's Project (BWP), Project Log, June 16, 1989.

[3] Elizabeth Good, BWP, Project Log, November 14, 1989.

[4] Garry Geter, BWP Project Log, 1/19/90.

[5] Abt Associates Fieldnotes, p.3.

3.1.3 Intervention

The Bridgeport Women's Project staff developed an intervention based on social/peer support and social networking.[6] Services included crisis intervention, HIV prevention information and supplies, referrals, assistance in dealing with service providers and government agencies, HIV antibody testing and counseling, and auxiliary services such as food, clothing, and transportation. BWP services aimed to empower women to become more independent and self-sufficient in their total lives, as well as to help them reduce their risk for HIV infection. The Project also provided supportive services to women with HIV infection and AIDS. Figure 7 shows that most BWP contacts with clients were on an individual basis. There was very little group-based intervention. This is reflected in the categories labeled "followup only", "counseling only", and "2 types of interventions," which cover 41 percent of AIA interviewees. The categories "group only" and "all 3 interventions", which include group activities, cover only 5 percent of interviewees.

Figure 8 shows that many Bridgeport contacts did not complete AIAs (32%) or participate in intervention activities beyond the AIA (37%). Another 21 percent had only 1 or 2 post-AIA contacts (or, as shown in Figure 8, 2-3 post-initial contacts) with the project. At the other end of the spectrum, a very small number (28 or 3%) had more than 11 contacts with staff. This is a highly volatile, troubled population, many of whose members were unable, for a variety of reasons, to become actively involved in BWP activities, even on an individual basis. Others became extremely dependent on the project for food, clothing, and support. For some of these, the BWP almost became a home.

The BWP model addressed the immediate needs of clients for food, shelter, safety, drug detoxification and other basic services, before presenting HIV prevention messages. Distribution of condoms and bleach, the heart of some AIDS prevention projects, was deliberately made secondary to the other services provided by staff at the Women's' Project., As noted, the Project was based on a philosophy of attending to basic needs first. However, a number of clients did begin stopping regularly at the office to pick up condoms. Unexpectedly, men also began appearing to request condoms from the project.'

At the BWP, most counseling was in the form of unscheduled, one-on-one conversations, which led to planning and referral-making. Such sessions were the key to the Project's case management

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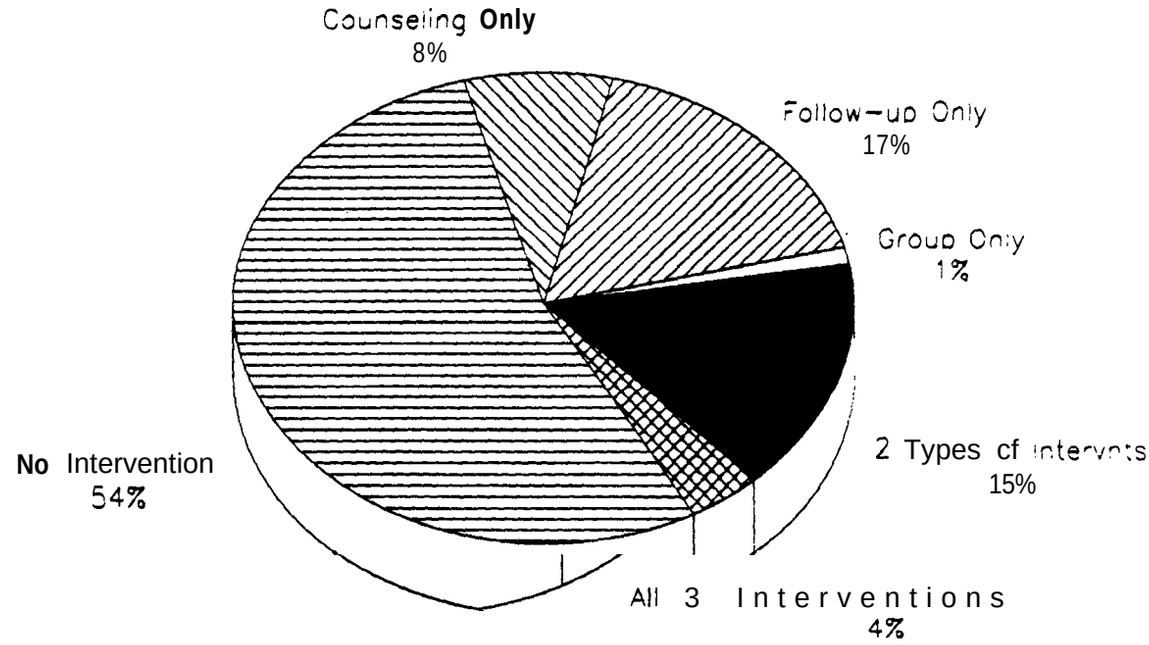
[6] Dana Hunt and Sarah Minden, Abt Associates, NIDA grant application for "Evaluation of social support services for drug abusers", submitted April 6, 1990.

[7] Liz Good, Womens Project, "Changes at WP during the past year", report to Abt Associates, June 1990.

Figure 7
Type of Intervention Among AIA Interviewees
Bridgeport (N=574)

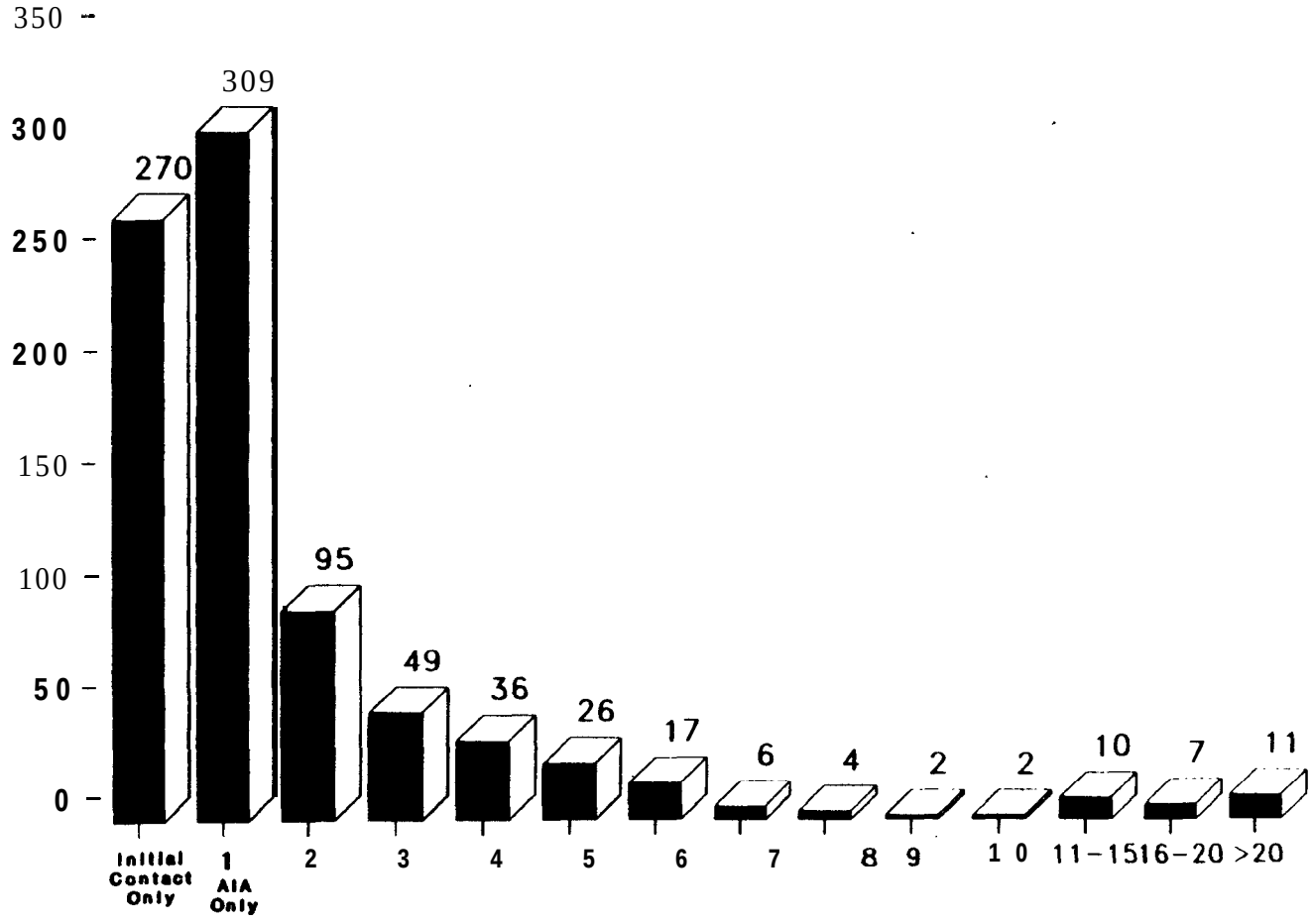


Cumulative (3 years)

Source: Abt Associates
Process Evaluation Data

Figure 8

Frequency of Encounters With Project, All Initial Contacts Bridgeport (N=844) Cumulative (3 years)



approach. Group counseling and educational sessions were attempted at BWP, but were never very well-attended. The primary reason for this appears to have been the disordered and highly troubled state of many of the clients' lives. In addition, issues of privacy and mistrust among clients made it difficult to introduce more structured activities. Despite these obstacles, a small number of group sessions did take place and participants reported that the discussions were helpful.

Although formal group meetings were not popular with the majority of BWP clients, informal gatherings were better attended. For example, a number of clients regularly attended weekly quilting sessions at the Project office, where squares for the AIDS quilt were made in memory of clients who had died, The project also put on holiday parties that were popular with clients and their children. A summer picnic was also held outside the city, to which clients were transported in the Project van, All of these events were part of the project's strategy to build trust in the community and to bring some pleasure into the generally troubled lives of its clients.

Although service availability was sorely limited in Bridgeport due to budgetary difficulties, BWP staff worked extremely hard to seek out drug treatment and other program opportunities for its clients. Project staff regularly spent time helping clients to get housing, government assistance, and jobs, retrieving children from the Department of Children and Youth Services, getting clients into drug detoxification programs or mental health counseling, and dealing with the court system and probation/parole officers. Such referrals sometimes resulted in a client obtaining necessary services and achieving dramatic improvements in her life situation. For example, a pregnant client was referred to the WIC program. Staff noted how happy the client was to be pregnant. She had gotten off drugs, stopped prostituting, and was taking care of herself. "You can see the change...she looks wonderful," reported the BWP counselor.[8] Another woman came into the BWP office after being beaten up by her sexual partner; she sought help leaving this man. Staff provided crisis counseling and referred her to a battered women's shelter. She was able to get off drugs and, according to staff, she "looked fantastic." The staff member concluded her report on this client: "she will be coming often for our support."[9]

HIV antibody testing was a difficult issue among BWP clients from the Project's inception. In the first year, most clients were unwilling to be tested at the Public Health Department, for reasons of access, privacy, and confidentiality." In the second year, staff arranged to have a city health

[8] Individual counseling encounter form, BWP.

[9] Individual counseling encounter forms, BWP.

[10] Stanley Sparks, Women's Project, Project Log, May 11, 1989.

department nurse on-site at the BWP office to draw blood for HIV testing. Still, however, relatively few BWP clients took advantage of the service. Only 32 BWP clients received HIV antibody testing through the project. Many may already have been tested, while others were still suspicious that confidentiality would not be maintained. Still others reported avoiding being tested for fear of learning they were HIV-positive.

Beyond individual counseling and referrals, BWP staff provided clients with a range of ancillary services. These varied services included transportation, clothing from the Project's "boutique," personal care items, food and drink, assistance in reconnection of utilities, and help obtaining GEDs. BWP began with an extremely unstructured range of services but, of necessity, introduced more structure over time. Some clients resented this. For example, staff had to limit the amount of food any individual could receive at the office in one day. Despite such restrictions, the Project remained a haven for local women.

BWP staff also helped clients cope with governmental and service provider bureaucracies. Staff often literally held clients' hands while walking them through medical and mental health care procedures: prenatal checkups, STD examinations, mental health counseling, and medical paperwork. The Project also established a rapport with hospital and clinic staff, resulting in better treatment of clients, particularly when accompanied by BWP staff.[11] Because of their prostitution and drug activity, many BWP clients were involved with criminal justice agencies. Many had been in jail, were on probation or parole. Project staff frequently provided clients with advice on how to cope with the intricacies of the criminal justice and social services systems.

In general, BWP staff aimed both to help clients get access to programs and to develop in them the skills and knowledge to become more independent -- that is, so they could look after their own needs and take control of their own lives. Staff placed heavy emphasis on clients becoming more self-reliant. For example, one women reportedly "comes in daily for food and support. We have all reached the conclusion that she has to be held more accountable for her own sake.... We love her but see no real changes yet."[12] The BWP approach was to work together with clients in an attempt to help them help themselves. One client came in depressed, hungry, and bruised from a beating administered by a "john". One of the staff "spent a lot of time talking about how we could work together to change her current situation" and concluded: "I feel that she is mentally ready to help herself.""

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[11] Liz Good, Women's Project, "Changes at WP during the past year," report to Abt, June 1990.

[12] Individual counseling encounter form, BWP.

[13] Individual counseling encounter form, BWP.

In a number of clients' cases, however, positive change in sexual and drug use behaviors was noted and attributed directly to project interventions. Several of the testimonial and case studies reported in earlier annual reports of this project attest to the remarkable changes achieved by some Bridgeport women with the aid of BWP. Some were able to gain control over very serious drug addiction, to regain custody of children from the state, and to find jobs, stable living arrangements, and long-term relationships. One client, a 21-year-old black prostitute, was a frequent crack user at the time of the AIA. She reported having had almost 300 sexual partners in the six months prior to the interview. With the assistance of the BWP, this client stopped her crack use and prostitution, and began working toward her GED. On the AFA, she reported only one episode of drug use in the prior six months -- she had smoked marijuana once. She also said that she had reduced her sexual partners to one. The woman stated that she had stopped drug use and established an exclusive sexual relationship because she wanted to have a child. She gave the BWP a great deal of the credit for helping her to change her behavior. In her words, the BWP "is a good project for women [who] do not have anybody -- reliable [and] always here. It is a good place for girls to talk about their problems and a place to help you change your life if you really mean it. The Women's Project changed my life!""

On the other hand, many of the BWP's clients were women in desperate straits, with serious drug problems, and leading very disordered lives. For many, the problems were simply too deep-seated and long-standing for fundamental positive behavior change to be a realistic goal. In these instances, BWP staff sought to provide crisis intervention services and referrals.

Sometimes, clients' overdependence on the project produced frustration in the staff. Referrals and support from the BWP staff did not always have the desired effect. One client came into the office seeking assistance in finding job training and appropriate referrals were made. The staff counselor commented: "client came in plenty of times for help but never follows through. Hoping this time is different.""[15] Another client repeatedly sought the help of BWP for problems related to her HIV infection. Despite staff counselors' advice, she continued to have sex freely and to share needles. She attempted to borrow money from project staff. One counselor commented: "I care so much for this woman but she's very selfish and acts childish.. .. She's precious but enough to drive me nuts."[16]

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[14] AIA, AFA and process data, Bridgeport Women's Project.

[15] Individual counseling encounter form, BWP.

[16] Individual counseling encounter form, BWP.

Staff of the Women's Project not only sought to provide for clients' basic needs and help them reduce their risk for HIV infection, but also faced the need to assist women already infected or ill with HIV disease. For clients hospitalized with AIDS and other illnesses, staff provided emotional support, paid for television rental, and offered other small services at their own expense or from a special fund created with donations. As a disenfranchised population, the clients had little power in health and even less in sickness. Therefore, staff advocated for better medical care for their clients, often with effectiveness. BWP staff spent a great deal of time visiting clients with AIDS in the hospital and otherwise providing assistance to them. Many of these women had no one else to help them. One staff member movingly described a visit to a hospitalized client. The room had not been cleaned and the woman's personal hygiene had suffered from neglect. The staff member "washed and groomed her... .gave her a rub down from head to toe.. .lotioned her body and massaged each joint... . When I finished I handed her a mirror and told her how pretty she looked. As the tears welled in her eyes, she thanked me for caring about her. " Four days after this visit, the client died."

At least ten BWP clients died of AIDS. Even in dealing with client deaths, staff expressed their attachment and commitment to clients. The project arranged a number of funerals for clients who had no family and sometimes staff were the only ones to attend the services.

In summary, the BWP offered total support for the women served. In every sense, the project provided non-traditional treatment which emphasized a holistic view of HIV prevention and drug treatment intervention.

3.2 Proyecto Companeros, Juarez

Proyecto Companeros operated in Juarez, Mexico in rooms above a liquor store near the Mariscal section of the city, an area packed densely with bars and brothels catering both to local people and U.S. servicemen and other Americans crossing the border from El Paso. The staff of the project were all Mexican or Mexican-American and, unlike in Bridgeport, the majority were trained social service professionals.

The city of Juarez is one of the largest in Mexico: the population doubled from about 500,000 to over 1 million during the 1980's. Many of the arrivals came in search of work in the burgeoning "twin plants" -- facilities operated by U.S. firms in Mexican border cities. These factories take advantage of tax concessions and cheap labor. Over ten thousand people are employed in twin plants in the Juarez area. Most employees in assembly jobs are women, often single mothers. However, there are also many

[17] Followup contact form, BWP.

male employees. Most of the workers are young, ranging from 16 to 30 years of age.'* Drug use and active sexual relationships are reportedly common in this population.

Despite the opportunities afforded by the "twin plants," unemployment is high, and the majority of the occupants of Juarez are extremely poor. Services for drug treatment are almost nonexistent and general health care options are limited.

3.2.1 **Description of the Target Population**

In Juarez, 935 women were contacted by Proyecto Companeros. As shown in Figure 9, almost two-thirds of these were prostitutes while just over 20 percent were sexual partners of IDUs. The target population breakdowns of the 438 AIA interviewees and the 297 of these who also completed AFA interviews were similar to the distribution found among initial contacts. The AIA-AFA followup rate was 68 percent. Of the 438 AIA interviewees, 382 were participants in subsequent intervention activities totalling one hour or more. This represents an extremely high 87 percent capture rate for interventions in Juarez.

Proyecto Companeros had medically trained staff and facilities to draw blood for HIV antibody tests but no clients availed themselves of this service. In part, this may have been due to relatively low perceptions of risk among some women and fear of learning their results among others. Moreover, Companeros staff point out that there are few, if any, medical intervention services available in Juarez to HIV-infected persons. Without intervention realistically available, those who believed they were at risk for infection may not have seen the point of being tested.

Figure 10 summarizes some sociodemographic characteristics of the AL4 interviewees in Juarez. They were overwhelmingly of Hispanic/Mexican background. Over 70 percent were between the ages of 20-39, although 16 percent were under 20. Almost 90 percent had some formal schooling, but the majority had not progressed beyond grade 8. Only 2 percent had any college-level education. Over two-thirds of the women lived in their own homes or apartments. An especially high 77 percent of sexual partners had their owa places to live. Very few of the Juarez AIA interviewees lived on the streets or in shelters. About one-third of the women reported regular, full-time work. Presumably, for many of the women, this work was prostitution: fully 40 percent of non-IDU prostitutes said they had full-time jobs.

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[18] Data from Dr. Castillo's Public Education Sessions Report to Lynne Harrold and Santiago Sifre (June 1990).

Figure 9

Project Site: Juarez, Mexico

SUMMARY COUNTS OF PROJECT DATA

	Sexual Partners of IDUs	Non-IDU Prostitutes [a]	IDU Prostitutes [a]	Other/ Unspecified [b]	Row Total
Initial Contact Forms	198 (21%)	592 (63%)	14 (2%)	131 (14%)	935 (100%)
AIA Interviews	125 (28%)	305 (70%)	8 (2%)	0	438 (100%)
Paired AFA Interviews [c]	79 (27%)	215 (72%)	3 (1%)	0	297 (100%)
AIA-AFA Follow-Up Rate	63%	70%	38%	N/A	68%
Participants [d]	105 (28%)	272 (71%)	5 (1%)	0	382 (100%)
HIV Tests [e]					
- Number of women tested for HIV antibody through project	0	0	0	0	0
- Number HIV positive	N/A	N/A	N/A	N/A	N/A
- % HIV positive	N/A	N/A	N/A	N/A	N/A

[a] Hierarchical categorization: Prostitute status takes precedence over sexual partner status. Thus, the prostitute categories include women who are also sexual partners of IDUs.

[b] "Other" represents those women whose target group membership was unknown at the time of initial contact, or who failed to meet the criteria for inclusion in the study. Ineligible contacts include IDU women who are not prostitutes and community contacts such as "gatekeepers".

[c] Includes only AFAs done 4-9 months after the AIA interview. Includes only AFAs done on persons who completed AIAs.

[d] Participants are defined as those taking part in intervention activities totaling one hour or more subsequent to AIA.

[e] Juarez offered blood drawing for HIV tests, but no clients took advantage of these services.

Figure 10

Project Site: **Juarez,** Mexico

DEMOGRAPHIC CHARACTERISTICS OF AL4 INTERVIEWEES BY TARGET **POPULATION**

Demographic Characteristic	**Sexual Partners of IDUs (N=125)** (%)	**IDU Prostitute (N=8)** (%)	Non-IDU **Prostitute (N=305)** (%)	ENTIRE **SAMPLE (N=438)** (%)
Race:				
Black	0.0	0.0	0.0	0.0
Hispanic	98.4	75.0	99.3	98.6
White	0.8	0.0	0.7	0.7
Other/Unknown	0.8	25.0	0.0	0.7
Age:				
13-19	24.2	25.0	12.9	16.3
20-29	47.6	37.5	48.8	48.3
30-39	22.6	37.5	31.0	28.7
40-49	3.2	0.0	6.9	5.7
50-51	2.4	0.0	0.3	0.9
Highest Level of Schooling:				
No formal schooling	12.8	0.0	10.2	10.7
Grade 1 - 8	58.4	50.0	59.0	58.7
Grade 9-11	16.8	50.0	19.3	19.2
Grade 12	7.2	0.0	10.2	9.1
Some college	4.8	0.0	1.3	2.3
Living Situation:				
Own house/apt.	77.3	33.3	63.3	66.9
Someone else's house/apt.	19.3	50.0	21.8	21.5
Rooming/boarding house	2.5	0.0	14.2	10.6
Shelter/welfare home	0.8	16.7	0.3	0.7
On the streets	0.0	0.0	0.3	0.2
Current Work Situation:				
Regular full-time work	21.8	0.0	40.0	34.1
Regular part-time work	6.5	0.0	0.7	2.3
Occasional work	6.5	12.5	4.6	5.3
Not working	65.3	87.5	54.8	58.4

Figure 10 (cont'd.)

Project Site: Juarez, Mexico

DEMOGRAPHIC CHARACTERISTICS OF **AIA** INTERVIEWEES BY TARGET **POPULATION**

Demographic Characteristic	Sexual Partners of IDUs (N=125) (%)	IDU Prostitute (N-8) (%)	Non-IDU Prostitute (N=305) (%)	ENTIRE SAMPLE (N=438) (%)
Relieion:				
Catholic	82.4	75.0	82.3	82.2
Protestant	6.4	12.5	5.6	5.9
Other/None	11.2	12.5	12.1	11.9
Child Care/Support (parents only):				
External Support/Care	83.6	100.0	70.0	73.8
No Support	16.4	0.0	30.0	26.2
'Number of Dependent Children Under Age 12:				
0	3.2	3.2	3.6	3.4
1	14.4	14.4	16.1	15.5
2	17.6	17.6	17.4	17.1
3	4.8	4.8	6.9	6.2
4	3.2	3.2	3.9	3.7
5	0.0	0.0	1.3	0.9
6	0.8	0.0	0.0	0.2
Non-Parent	56.0	27.5	50.8	53.0

Source: Abt Associates, MA Interviews

a "Other" includes missing values and values with few responses.

Half of the women had dependent children under 12, most of these reported having one or two children in this age category, Very few of the interviewees had large families of young children. Almost three-quarters said they had external sources of child care and support.

Figure 11 summarizes self-reported drug use among Juarez AIA interviewees. The most striking point in these data is the low level of reported drug use among these women -- far lower than was found in Bridgeport and substantially lower than in San Juan. Only five percent of the Juarez women reported abusive use of marijuana and 3 percent reported abusive use of amphetamines. Seventeen percent (in particular, many prostitutes) said they used cocaine at a low level, but crack was virtually unknown in this population. It is important to recognize that the vast majority of prostitutes interviewed in Juarez were non-IDUs. However, the AIA figures may understate injection drug use among Juarez prostitutes because they do not capture intramuscular injection of vitamins and antibiotics which is said to be common practice in this population.

3.2.2 Outreach

Proyecto Companeros developed a range of outreach strategies directed at reaching the different, sub-groups of the target population. Prostitute outreach was conducted in teams, focusing efforts in the afternoon and early evening. Outreach occurred on the streets to some extent, but focused on the bars and brothels. Project staff were remarkably successful in obtaining the consent and cooperation of bar and brothel owners for outreach efforts. Over the course of the project, Companeros staff also did outreach in the jail, juvenile detention center, and drug treatment programs. Another interesting feature of the project was its HIV/AIDS public education efforts which focussed on the work force of the numerous "twin plants," primarily assembly installations operated by U.S. firms in Mexican border areas. The project's public education efforts are described in a separate section below,

Outreach to sexual partners was ultimately quite successful in Juarez. At the beginning of the first year of the project, staff attempted to contact sexual partners through the city's few drug treatment programs. This proved unsuccessful. Unlike the Bridgeport experience, however, the staff discovered that male IDUs could be approached on the street and that, after a period of building trust and rapport, staff could induce them to refer their sexual partners to Companeros. Critical to the success of this strategy was the project's use of a husband-and-wife team of outreach workers, both recovering addicts with close ties to the drug user community in Juarez. For recruitment of group participants, project staff

Figure 11

Project Site: Juarez, Mexico

SELF-REPORTED DRUG USE AMONG AL4 **INTERVIEWEES,** BY TARGET POPULATION

Level/Intensity of Use **in Past** 6 **Months** *	**Sexual Partners of IDUs (N=125)** (%)	**IDU Prostitutes (N=8)** (%)	Non-IDU Prostitutes (N=305) (%)	ENTIRE SAMPLE (N=438) (%)
Marijuana:				
No use	80.3	37.5	76.2	76.6
Low level	15.4	25.0	19.8	18.7
Abusive use	4.3	37.5	4.0	4.7
Crack cocaine:				
No use	100.0	100.0	99.0	99.3
Low level	0.0	0.0	1.0	0.7
Abusive use	0.0	0.0	0.0	0.0
Cocaine (injected and/or non-injected):				
No use	90.0	37.5	78.0	80.6
Low level	5.8	62.5	20.7	17.4
Abusive use	4.2	0.0	1.3	2.1
Amphetamine (injected and/or non-injected):				
No use	94.2	87.5	90.1	91.2
Low level	3.3	0.0	7.0	5.8
Abusive use	2.5	12.5	3.0	3.0
Heroin (injected and/or non-injected):				
No use	98.3	25.0	99.7	97.9
Low level	0.8	25.0	0.3	0.9
Abusive use	0.8	50.0	0.0	1.2
Heroin & Cocaine (injected and/or non-injected): (speedball)				
No use	99.2	50.0	99.7	98.6
Low level	0.0	12.5	0.0	0.2
Abusive use	0.8	37.5	0.3	1.2

Figure 11 (cont'd.)

Project Site: Juarez, Mexico

SELF-REPORTED DRUG USE AMONG AIA INTERVIEWEES; BY TARGET POPULATION

Level/Intensity of Use in Past 6 Months [a]	Sexual Partners of IDUs (N=125) (%)	IDU Prostitutes (N=8) (%)	Non-IDU Prostitutes (N=305) (%)	ENTIRE SAMPLE (N=438) (%)
Tranquilizers (injected and/or non-injected):				
No use	95.0	62.5	95.0	94.4
Low level	2.5	25.0	3.6	3.7
Abusive use	2.5	12.5	1.3	1.9

Source: AIA Interviews

[a] The level/intensity of use categories here are derived from frequency of use responses to the AIA drug questions. Abusive vs. low use for any particular drug was established based upon the Addiction Severity Index.

Numbers do not all add up to 100% due to rounding.

targeted families and existing social networks. For example, a group might typically include a mother and her daughters.

Although AIA data suggest low rates of heroin use among project clients, it is believed that this drug is increasing in availability in Mexico, and its use is becoming more open. In Puente Negro and other Juarez neighborhoods near the Rio Grande, people can be seen on the streets openly selling heroin with little police interference.[19] Companeros's husband and wife outreach team were highly successful at recruiting in these areas. When an IDU was contacted, he was often known to the team. Usually, the male member of the team talked with the male IDUs, who then referred their partners to the female member for intervention services. Staff reported, however, that some IDUs whose drug use was unknown to their wives or female partners did not want to give staff the names of these women.

The female member of the Companeros outreach team reported that essential to their success was telling the men that the project provided "health" information, as this was less threatening than other descriptions. Otherwise, this staff member felt, the IDUs may have thought the project staff were condemning their way of life, or encouraging their spouses or sexual partners to stop having sexual relations with them. The female member of the team made no overtures to women without their male partner's approval.

In Juarez, familial ties were a critical part of outreach. The outreach couple encouraged group sessions among families or friends, and successfully using word-of-mouth advertising. One IDU who is a well respected member of the drug using community "allowed" the women in his family to participate in the program. In addition to setting a standard for others to follow, they gave staff names of other people to contact.

The outreach couple reported changes in Juarez during the three year course of the project. More IDUs and their partners began hearing about the project, and the younger men started requesting information about AIDS, sexually transmitted diseases (STDs), and bleach. The male member of the outreach team reported that men asked why they were not included in the groups and seemed at times even more interested than the women in Companeros's work. Younger men wanted coeducational groups, and asked about the HIV antibody test. Three men asked to join a self-esteem class.

[19] Field work/eyewitness account by Lynne Harrold and Santiago Sifre, June 1990.

3.2.3 Public Education

Companeros developed community-wide education as both an outreach tool and a service to the community. Many of those who took part in the public education sessions later visited the Project office seeking information and some became project clients. Two physicians on the Companeros staff coordinated public education events and institutional relations. The Project's public education approach recognized that the general population of Juarez is at risk for HIV infection because of the prevalence of drug abuse, prostitution and casual sexual encounters both among heterosexuals and homosexuals.[20]

The team's strategy was to meet with authorities, such as the management of a factory, and explain their plans and concerns. Most agreed to cooperate. Community support allowed the public education drive to gather momentum. Public education sessions were conducted in schools, hospitals, law enforcement and public safety agencies and work settings without any major problems.

Community education efforts concentrated on the twin plants. Project staff approached factory management and sought permission to present education sessions. Permission was usually granted and the firm provided space for the session to be held. In most cases, attendance was mandatory. Classes were typically coeducational and averaged one hour in length. Companeros staff presented well over 400 AIDS educational sessions at these plants during the course of the project. Over 3,200 men and over 6,700 women attended these sessions. In addition, almost 700 men and over 200 women received HIV education in school-based sessions. (Since the expiration of NIDA funding, Companeros has been able to continue its HIV educational sessions in the factories and schools with funding support from the Mexican Health Foundation and some of the corporations operating the twin plants.)

3.2.4 Interventions for Target Populations

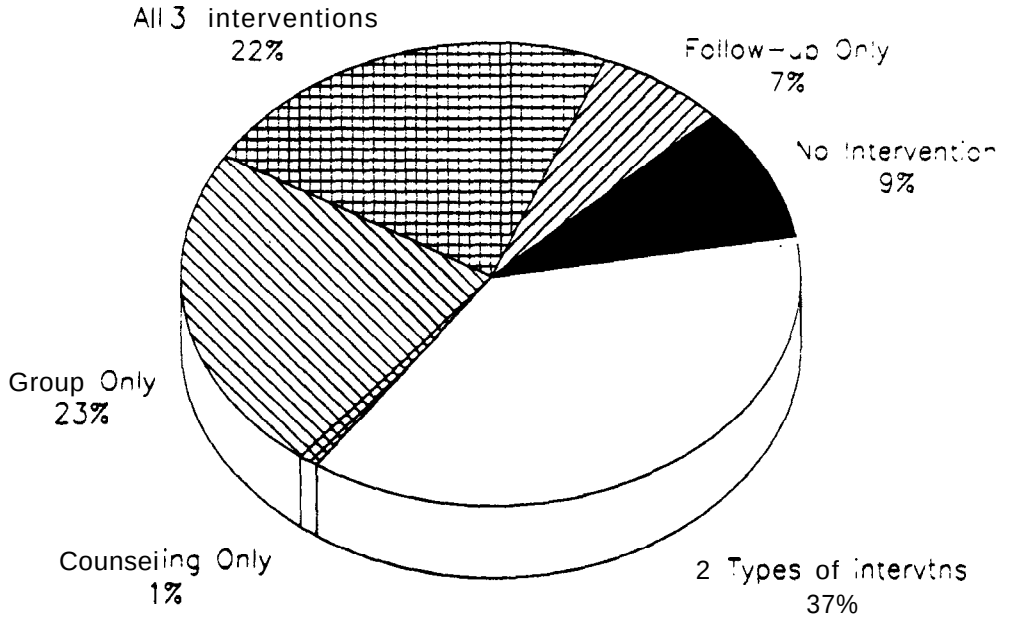
The Companeros intervention was based on a curriculum comprising four weekly group sessions. (Originally, eight weekly meetings were held, but the material was subsequently collapsed into a four-session format.) Sessions covered the following topics: basic information on HIV/AIDS; myths and realities regarding HIV/AIDS and sexually transmitted diseases (STDs); STDs and general health issues; drugs, needles, and risk reduction; sexual risk reduction and condoms; HIV antibody testing; and AIDS and the family. Figures 12 and 13 depict the types and frequency patterns of intervention activities in Juarez. These show the predominance of group interventions (reflected in the "group only", "2 types", and "3 types" categories, covering 82% of AIA interviewees) and reveal that 70 percent of clients who had any post-initial contact with the project had between 4-20 contacts. This suggests that a large number

[20] From Site Visit: Conversation With Dr. Castillo.

Figure 12

Type of Intervention Among AIA Interviewees

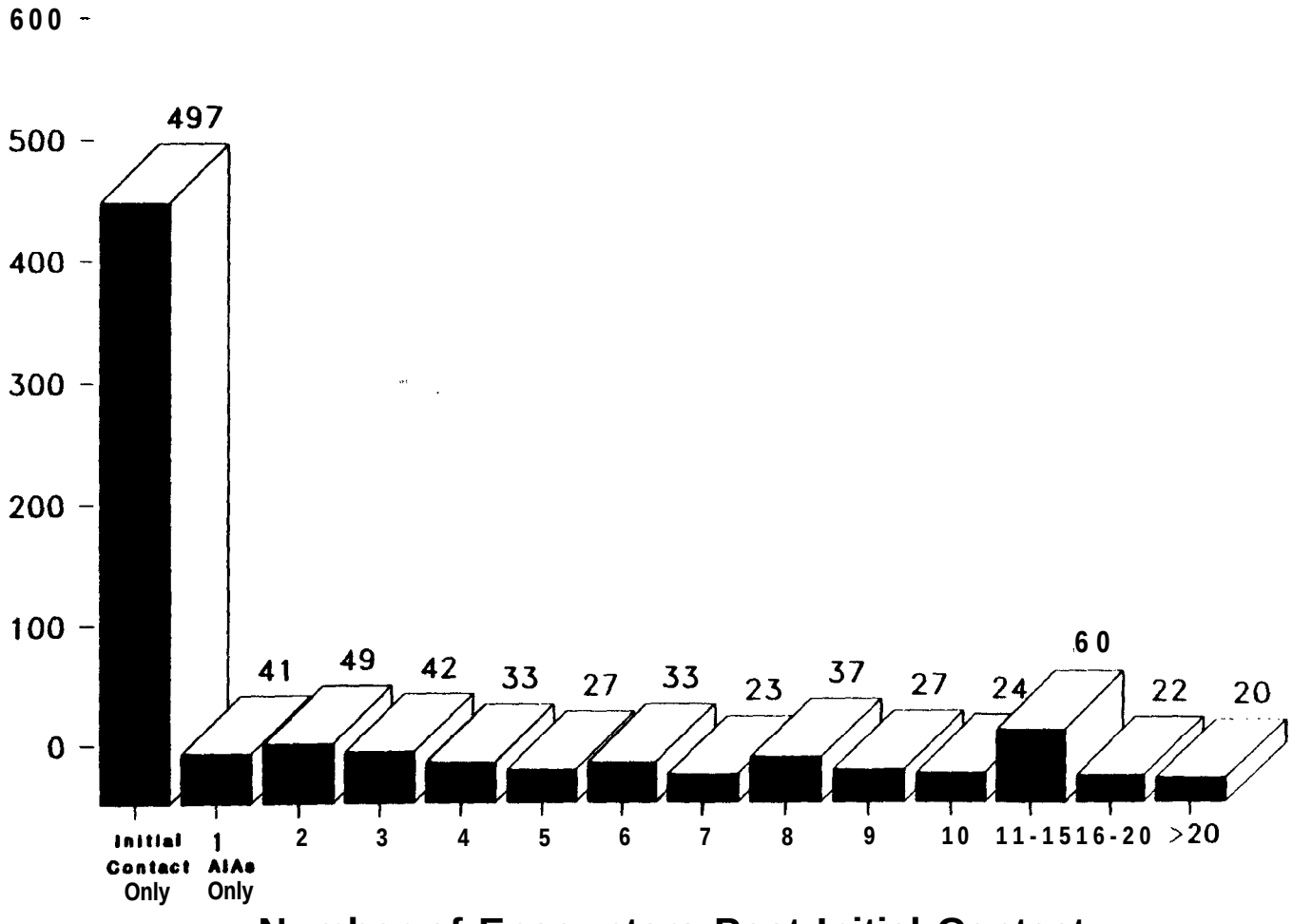
Juarez (N=438)



Cumulative (3 years)

Source: Abt Associates Process Evaluation Data

Figure 13
Frequency of Encounters With Project, All Initial Contacts
Juarez (N=935) Cumulative (3 years)



of women completed the curriculum and may have had several additional intervention contacts with staff as well. In general, the patterns of participation in Juarez probably reflect a much more stable population than was encountered by the Bridgeport Women's Project.

A series of fotonovelas was also developed and widely distributed by Companeros. Staff physicians offered basic diagnostic services, pap smears, and other medical care on-site. The project's office was available for walk-in counseling and advice. Clients often stopped to pick up condoms and other prevention supplies. Finally, Companeros offered classes in literacy, English as a second language, stress management, aerobics, nutrition, beauty and health care.

Men and women intermingle freely within the Juarez jail, and prostitution and drug use are widespread. Therefore, this was a critical site for Companeros' interventions. Most of the women at the Juarez jail completed the Companeros curriculum, and most of the male inmates attended education sessions and were offered individual counseling. Condoms were also distributed in the jail, with the consent of the authorities. Bleach bottles were given to male inmates, but authorities would not permit their distribution to women in the jail.

Companeros presented the intervention curriculum to numerous groups of sexual partners. The first groups were held in Casetas, an outlying town where the staff discovered a concentration of IDUs and sexual partners.[21] After all of the receptive women in Casetas had been reached with the intervention, groups were formed in Juarez itself, based primarily on the efforts, described above, of the project's husband-and-wife outreach team.

These groups were successful in part because they took advantage of existing social networks. Many groups were composed of family members, typically, a mother and her daughters. They trusted each other, shared their problems with each other and were receptive to the information presented.

Staff taught both partners how to use condoms but were careful to avoid deliberately upsetting the perceived balance of Rower within the relationship.[22] Nevertheless, staff noticed that once women learned about their own risk of infection through their partner's behavior, they started demanding that their men make lifestyle changes. Not surprisingly, such assertiveness on the part of women occasioned heightened tensions with their mea. Some of the men resented Companeros' presence, believing that its interventions threatened their relationships.

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[21] Companeros Monthly Report, July 1989.

[22] Ibid.

Companeros's interventions and educational strategies were sensitive to subtle sociocultural norms and values. For example, staff never taught non-prostitute sexual partners how to put a condom on a man with her mouth as this is perceived as a practice of prostitutes and might be insulting.[23] The issue of condom use within marriage or long-term relationships was approached in a similar fashion, usually in the context of "communication" rather than "negotiation" since the latter might have been interpreted as a crass or commercial approach.

Much of the intervention activity with prostitutes took place in the bars and brothels themselves. Staff first spoke with the owners and were usually able to gain their trust and cooperation. This was essential, since group sessions usually took place during "working hours".

The intervention program, while following essentially the same standard curriculum, was adapted to each set of circumstances. Staff encouraged clients to request particular parts of the curriculum that were of greatest interest to them and in the sequence they preferred. There was also flexibility regarding location of intervention sessions. In addition to meeting in the bars and brothels, the staff held some individual counseling sessions and group meetings in the homes of prostitutes. This was possible because staff and prostitutes had often become friends, and staff showed the women that home meetings were convenient and possibly more productive than those held in bars while the women worked.

Companeros staff also conducted some interventions with street prostitutes. Many of these women requested condoms and brought in more street prostitutes for group sessions. Staff felt that this was an indicator of increasing condom use. The prostitutes of Juarez were concerned both with protecting their health and with watching their competition, as both affected their ability to make money. As a result, they encouraged other street prostitutes to use condoms so as not to lose clients to women who would engage in sex without a condom. They were encouraged to form condom "cartels" -- that is, groups who would agree to require all their customers to use condoms.

In general, Companeros staff found that, as the project proceeded, more and more prostitutes accepted the fact that they were at risk for HIV/AIDS. Behavioral changes likely associated with this increasing awareness, as well as the continuing barriers to behavior change, are reflected in anecdotal evidence from AIAs and AFAs. One 21-year-old prostitute and mother of three children repotted having had sex with 328 partners in the six months prior to the AIA. At the time of the AFA, she stated that she had stopped prostituting for a time but had gone back to it when she was unable to get by financially. However, after having attended the Companeros intervention program, she reported reducing the number of her sexual partners.

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[23] Ibid.

A second Juarez prostitute stated on the AIA that she had had 200 sexual partners in the last six months and had used condoms in about half of her sexual encounters. She reported engaging in unprotected anal intercourse and was generally ill-informed regarding HIV risk factors and prevention measures. For example, she believed that HIV could be transmitted through the use of public toilets, blood donation, and casual contact with an infected person. She then participated in the Companeros intervention curriculum and, by the time of the AFA, had reduced her number of sexual partners to 30 and required all of her customers to use condoms. She no longer engaged in anal intercourse and displayed a much higher level of AIDS knowledge and awareness.

A third prostitute client reported on the AL4 that she used condoms more than half the time with her customers but never with her spouse. During individual counseling, the woman assumed a positive attitude toward the possibility of being HIV-infected and expressed an intention to increase her risk reduction behaviors. Following this counseling, she attempted to convince her husband to use condoms and even brought him into the Companeros office for information and advice from the staff. By the time of the AFA, this Companeros client reported a decline in the number of her sexual partners and an almost perfect record of condom use with both her customers and husband. She attributed her progress to the program's ability to increase her awareness of her own risk. The ready availability of condoms from the project also helped.

3.3 Proyecto Tu, Mujer, San Juan

Proyecto Tu, Mujer operated through the Department of Anti-Addiction Services (DSCA), the Commonwealth of Puerto Rico's substance abuse agency. San Juan, a sprawling metropolis with many pockets of poverty, has a faster growing incidence rate of AIDS than almost all continental U.S. cities. The older sections of the city and many of the resort areas are centers of heavy drug use, drug trafficking, and prostitution. In addition, San Juan's population is mobile. Many residents travel to the U.S. mainland often and many persons enter the island from other areas of the Caribbean. The project operated in a highly mobile fashion. Outreach, services, workshops, and even testing were offered in the field, primarily in housing projects or neighborhood centers, although early efforts also involved street outreach in Old San Juan. The site coordinator and several of the other staff had professional training in psychology, social work, nursing, and related fields, but the outreach staff were indigenous workers, several of whom were recovering addicts and former prostitutes.

3.3.1 Description of the Target Population

Figure 14 shows that the San Juan project contacted 762 women, of whom 84 percent were sexual partners of IDUs. Almost 90 percent of the 649 AIAs conducted by Tu Mujer were with sexual partners, as were over 90 percent of the 494 paired AFAs completed. The AIA-AFA followup rate was an impressive 76 percent. Moreover, 614 of the 649 AIA interviewees (95%) became program participants by having at least one hour's intervention contact with staff subsequent to the baseline interview. Finally, as shown in Figure 14, the vast majority of AL4 interviewees (586 of 649, or 90%) received HIV antibody tests through the project. Overall, the HIV seropositivity rate among women tested was 9 percent, but it was much higher among IDU prostitutes (74%).

Figure 15 provides some sociodemographic characteristics of the AIA interviewees in San Juan. Not surprisingly, 95 percent were of Hispanic background. This included not only Puerto Ricans, but also Dominicans and various other groups of Caribbean Hispanics. The vast majority of the women were between 20 and 39 years old. Most had some formal schooling: 24 percent were high school graduates and 13 percent had some college education. Eighty percent of all the AIA interviewee in San Juan lived in their own houses or apartments, but this percentage was a good deal lower for prostitutes. Thirteen percent of the IDU prostitutes interviewed repotted living on the streets, but very few women in the other target population categories said they were homeless. The vast majority of the women reported not having regular work. This reflects the high percentage who were sexual partners and homemakers in the housing projects. Catholicism was the primary religion among these women but a significant minority reported being Protestants. Most of the sexual partners reported having between 1 and 3 children under 12 living with them, but the percentages were lower for prostitutes. Almost 60 percent said they had outside sources of support and/or child care.

Self-reported drug use among San Juan AIA interviewees is summarized in Figure 16. This shows relatively low levels of drug use, except among IDU prostitutes, seventy-seven percent of whom reported abusive use of "speedball," 76 percent of cocaine, and 69 percent of heroin. Crack was not prevalent among these women, but 30 percent across all target populations reported at least some use of cocaine.

3.3.2 Outreach

For a few months at the very beginning of the project, outreach efforts concentrated on prostitutes in the old San Juan area. However, due to tensions with another outreach project in the same geographic area and concern about being able to followup with the early prostitute contacts, Tu, Mujer shifted its

Figure 14

Project Site: San Juan, Puerto Rico

SUMMARY COUNTS OF PROJECT DATA

	Sexual Partners of IDUs	Non-IDU **Prostitutes** [a]	IDU **Prostitutes** [a]	**Other/** [b] **Unspecified**	Row Total
Initial Contact Forms	638 (84%)	**40 (5%)**	**6 (1%)**	78 (10%)	762 (100%)
AIA Interviews	579 (89%)	40 (6%)	30 (5%)	0	649 (100%)
Paired AFA Interviews [c]	453 (92%)	27 (5%)	14 **(3%)**	0	494 (100%)
AIA-AFA Follow-Up Rate	78%	68%	47%	**0**	76%
Participants [d]	552 (90%)	37 (6%)	25 (4%)	**0**	614 (100%)
HIV Tests					
- Number of women tested for antibody through project	530	37	19	**0**	586
- Number HIV positive	40	1	14	N/A	55
- % HIV Positive	7.5%	2.7%	73.7%	**N/A**	9.4%

- Hierarchical categorization: Prostitute status takes precedence over sexual partner status. Thus, the prostitute categories include women who are **aslo** sexual partners of **IDUs**.

[b] "Other" represents those women **whose** target group membership was unknown at the time of initial contact, or who failed to meet the criteria for inclusion in the study. Ineligible contacts include **IDU** women who are not prostitutes and community contacts such as "gatekeepers".

[c] Includes only **AFAs** done 4-9 months after the **AIA** interview. Includes only **AFAs** done on persons who have completed **AIAs**.

[d] Participants are defined as those taking part in intervention activities totaling one hour or more subsequent to AIA.

[e] HIV results pertain to AIA respondents only. Women who were tested for HN, but later determined ineligible, are not included.

Figure 15

Project Site: San Juan, Puerto **Rico**

DEMOGRAPHIC CHARACTERISTICS OF **AIA** INTERVIEWEES, BY TARGET **POPULATION**

Demographic Characteristics	Sexual Partners of IDUs (N=579) (%)	IDU Prostitutes (N=30) (%)	Non-IDU Prostitutes (N=40) (%)	ENTIRE SAMPLE (N=649) (%)
Race:				
Black	2.8	0.0	7.5	2.9
Hispanic	95.0	96.7	87.5	94.6
White	1.9	3.3	5.0	2.2
Other/Unknown	0.3	0.0	0.0	0.3
Age:				
13-19	8.5	0.0	5.0	7.9
20-29	51.0	66.7	40.0	51.0
30-39	32.8	30.0	37.5	32.9
40-49	6.6	3.3	10.0	6.6
50-51	1.2	0.0	7.5	1.5
Hiehest Level of Schooling:				
No formal schooling	0.9	0.0	5.0	1.1
Grade 1 - 8	25.9	26.7	37.5	26.7
Grade 9-11	35.9	43.3	27.5	35.7
Grade 12	24.0	23.3	17.5	23.6
Some college	13.3	6.7	12.5	12.9
Living Situation:				
Own house/apt.	83.1	36.7	67.5	80.0
Someone else's house/apt.	16.9	30.0	30.0	18.3
Rooming/boarding house	0.0	20.0	2.5	1.1
Shelter/welfare home	0.0	0.0	0.0	0.0
On the streets	0.0	13.3	0.0	0.6
Current Work Situation:				
Regular full-time work	3.6	0.0	5.0	3.6
Regular part-time work	2.4	0.0	10.0	2.8
Occasional work	2.1	3.6	0.0	2.0
Not working	91.8	96.4	85.0	91.6
Religion:				
Catholic	60.8	63.3	67.5	61.3
Protestant	25.2	30.0	17.5	25.0
Other/None	14.0	6.7	15.0	13.8

Figure 15 (cont'd.)

Project Site: San Juan, Puerto Rico

DEMOGRAPHIC **CHARACTERISTICS** OF **AIA** INTERVIEWEES, BY TARGET **POPULATION**

Demographic Characteristics	Sexual Partners of IDUs (N=579) (%)	IDU Prostitutes (N=30) (%)	Non-IDU Prostitutes (N=40) (%)	ENTIRE SAMPLE (N=649) (%)
Child Care/Support (parents only):				
External Support/Care	59.5	100.0	54.5	59.6
No Support	40.5	0.0	45.5	40.4
Number of Dependent Children Under Age 12:				
0	6.6	3.3	20.0	7.2
1	25.7	3.3	10.0	23.7
2	24.7	0.0	17.5	23.1
3	17.3	10.0	5.0	16.2
4	6.9	0.0	2.5	6.3
5	1.6	0.0	0.0	1.4
6	0.9	0.0	0.0	0.8
7	0.3	0.0	0.0	0.3
Non-Parent	16.1	83.3	45.0	21.0

Source: Abt Associates, AL4 Interviews

• "Other" includes missing values and value-s with few responses.

Figure 16

Project Site: San Juan, Puerto Rico

SELF-REPORTED DRUG USE AMONG AIA INTERVIEWEES BY TARGET POPULATION

Level/Intensity of Use in Past 6 Months	Sexual Partners of IDUs (N-579) (%)	IDU Prostitutes (N=30) (%)	Non-IDU Prostitutes (N=40) (%)	ENTIRE SAMPLE (N=649) (%)
Marijuana:				
No use	74.2	56.7	56.4	72.3
Low level	20.4	40.0	33.3	22.1
Abusive use	5.4	3.3	10.3	5.6
Crack cocaine:				
No use	94.6	82.8	75.0	92.8
Low level	3.3	13.8	7.5	4.1
Abusive use	2.1	3.4	17.5	3.1
Cocaine (injected and/or non-injected):				
No use	74.4	17.2	42.5	69.9
Low level	21.2	6.9	52.5	22.5
Abusive use	4.3	75.9	5.0	7.6
Amphetamine (injected and/or non-injected):				
No use	97.1	90.0	90.0	96.3
Low level	1.4	10.0	10.0	2.3
Abusive use	1.6	0.0	0.0	1.4
Heroin (injected and/or non-injected):				
No use	92.6	20.7	77.5	88.4
Low level	4.0	10.3	5.0	4.3
Abusive use	3.5	69.0	17.5	7.3
Heroin & Cocaine (speedball) (injected and/or non-injected):				
No use	96.7	13.3	82.5	92.0
Low level	2.1	10.0	15.0	3.2
Abusive use	1.2	76.7	2.5	4.8

Figure 16 (cont'd.)

Project Site: San Juan, Puerto Rico

SELF-REPORTED DRUG USE AMONG AIA INTERVIEWEES BY TARGET POPULATION

Level/Intensity of Use in Past 6 Months •	Sexual Partners of IDUs (N=579) (%)	IDU Prostitutes (N=30) (%)	Non-IDU Prostitutes (N=40) (%)	ENTIRE SAMPLE (N-649) (%)
Tranquilizers (injected and/or non-injected):				
No use	88.4	56.7	75.0	86.1
Low level	7.1	40.0	12.5	9.0
Abusive use	4.5	3.3	12.5	4.9

Source: AIA Interviews

• The level/intensity of use categories here are derived from frequency of use responses to the AIA drug questions. Abusive vs. low use for any particular drug was established based upon the Addiction Severity Index.

Numbers do not all add up to 100% due to rounding.

outreach efforts to focus on sexual partners of IDUs. As in Juarez, the project tried initially to reach sexual partners through male clients in drug treatment programs but the approach failed.

Midway through year one, Tu Mujer turned its outreach attention to the numerous public housing projects in the San Juan metropolitan area. This remained the principal locus of outreach throughout the remainder of the project's activities. During the project, Tú, Mujer conducted outreach and provided service in 56 housing projects. Staff normally established a base of operations in a housing project's community center.[24] Working in these centers involved establishing liaison with the housing project administration, which was sometimes, but not always, successful. Before entering a housing project, the staff investigated the relationship between the administration and the residents, If the relationship was good, Tú, Mujer associated its efforts with the administration; if the relationship was poor, staff tried to distance themselves from the administration.

The administrations of many of the targeted housing projects were extremely helpful in allocating work space and giving project staff inside information on how to access potential participants. On the other hand, some housing project administrations were uncooperative and made work more difficult. One housing project director wanted access to confidential material from TJ, Mujer's participants and even wanted to sit in on counseling sessions. Administration staff in some of these projects did not have a good rapport with their residents which then became a barrier to Tú, Mujer's accessing the population. In these cases, potential participants would refuse participation because they associated Tú, Mujer's staff with the administration. Women in such housing projects perceived staff as "government agents" who could get them in trouble with the Housing Authority or the Welfare Office. To qualify for government subsidies, some of these women applied as single heads of households, and they therefore felt uncomfortable talking about their live-in partners.

The power exercised by drug dealers in particular housing projects also influenced outreach success. Sometimes a housing project's staff were uncooperative because they felt threatened by the dealers. In these projects, potential participants would not come forth for fear of being associated with an AIDS project. There were cases in which Tú, Mujer's staff directly experienced the hostility of drug dealers. For instance, Residencial Covadonga is a closely knit community where drug dealers have total control and the housing project administration was frightened about the idea of an AIDS project. When Td, Mujer staff attempted to begin direct outreach there, someone hit one of the nurses with a stone.[25]

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[24] Abt Associates, First Annual Report to NIDA, June 1989.

[25] Abt Associates, Fieldnotes, 5/29/90.

There was great variation across San Juan housing projects in the number of potential participants contacted and enrolled, a reflection of the factors mentioned above, which either facilitated or prevented Tú, Mujer from saturating a particular area. Generally, teams were instructed to follow what the project director called the 'Three Day Rule" -- that is, if, after three full days of outreach, they had not broken the ice, they moved on to a new housing project. The specific circumstances of each housing project were very important influences on the outcome of outreach strategy and intervention.

Certain characteristics in the attitudinal composition of the groups within each housing project were observed. For instance, at some housing projects, people did not want to be identified as looking for help or information regarding AIDS, while at others, residents seemed eager for more.[26] Tú, Mujer's outreach and intervention teams devised a structured protocol of outreach for housing projects. They usually started by observing women's movements and activities and investigating the relationship between the administration and residents. Following this, staff located the drug dealing spots, where they talked to both drug dealers and users. Outreach workers also visited shooting galleries where they talked with and gave prevention supplies to drug users, many of whom eventually told their partners about Tu, Mujer. This represented a significant difference from earlier efforts when drug users in treatment programs rarely referred their partners to the project.[27] Thus, it was easier to gain the trust of drug users through direct outreach in their community. Home visits also became a standard procedure, facilitating follow-up.

A major change from early outreach strategies was the distribution of project literature at the point of initial contact. According to Tú, Mujer staff, without any literature it was difficult to establish credibility or get the women interested in the Project. However, with a Tu, Mujer brochure, staff could begin a quick screening while the potential participant received basic facts about the project and considered the benefits of participation. Another handout titled "To my friend" contains basic information about AIDS, HIV testing, and referral sources in the San Juan area. The handout was phrased in a nonthreatening way and introduced the information as if for a friend who might need it. After initial contacts were made and credibility was established, women started spreading the word about the project and characterized it as "safe".

Other outreach activities included making announcements about talleres, educational workshops on AIDS, presented to the community at large.

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[26] Abt Associates, Fieldnotes, 5/29/90.

[27] Abt Associates, Fieldnotes, 5/29/90.

3.3.3 **Intervention**

Figures 17 and 18 show the types and frequency in participation in intervention activities by AIA interviewees in San Juan. The prevalence of women in the categories "counseling only", "two types of interventions", and "all three interventions" (a total of 96% of AIA interviewees) reflect the project's emphasis on HIV counseling (pre- and post-test) and l-2 session educational workshops as key parts of its intervention program. The frequency of participation also suggests this, with clusters of women having had 2-6 intervention contacts (84% of the clients with any post-initial contacts).

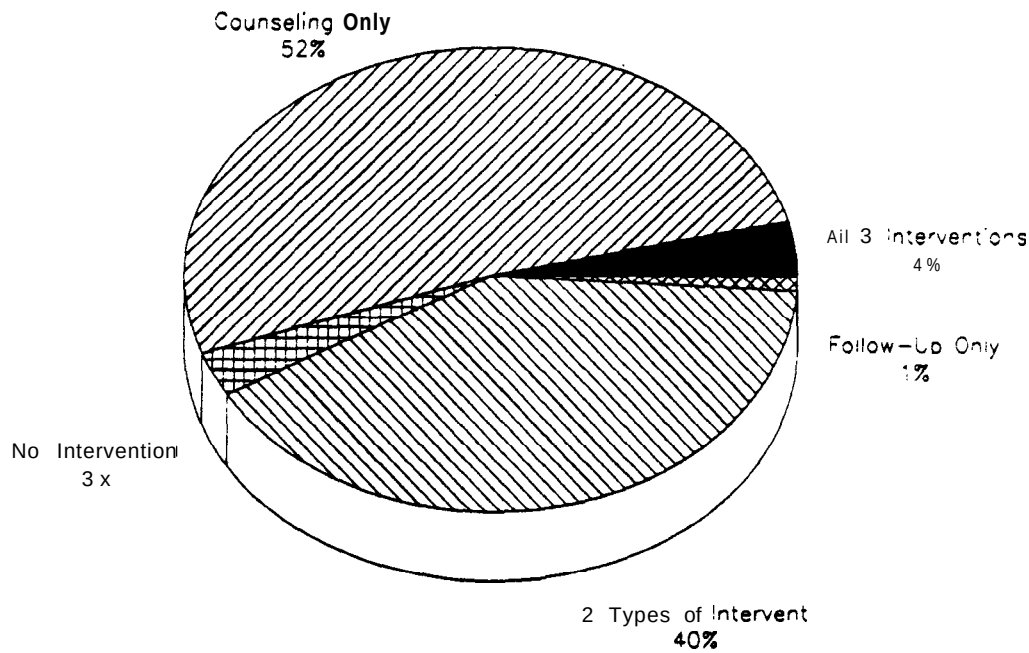
As noted earlier, fully 90 percent of AIA interviewees in San Juan received HIV antibody tests through Tu, Mujer. Of the 586 women tested, 512 (87%) returned for their results. Project staff did not attempt to contact women who did not return for test results, because such contacts might have alarmed the women. An interesting phenomenon observed by Proyecto Tú, Mujer was the large number of women who returned at the time of the AFA to have a second HIV antibody test, even if they had not returned for the results of their first test.[28] Women in San Juan are clearly concerned about HIV/AIDS. This helped to explain the receptivity of Tu, Mujer clients to HIV counseling and testing. Another explanation was the unavailability elsewhere in San Juan of high-quality counseling and testing services. The only other major provider of HIV testing was the Health Department's CLETS (Centro Latinoamericano de Enfermedades de Transmisión Sexual, or Latin American Center of Sexually Transmitted Diseases), which had long waiting lists and not always the most comprehensive or sensitive counseling. Tú, Mujer, by contrast, offered a complete and highly sensitive counseling protocol that went well beyond the minimum standards for alternative testing sites. Moreover, the project brought counseling and testing services directly to the women in the housing projects with no waiting period.

Tú, Mujer's entire protocol generally took one to one and a half hours, but there were exceptions. Some women, especially those with positive test results, received support and follow-up that went beyond the standard two sessions. Lack of access to medical interventions for HIV-infected persons was a serious problem in San Juan throughout the project. This was extremely upsetting for clients and staff who often had nowhere to refer HIV seropositive women for treatment.

Conversely, many women who received negative results saw this as a second chance for their lives. Project staff felt that many of these women were making significant changes in their lives. They were becoming more assertive and had begun to negotiate sexual practices with their partners. Many of them helped their partner to get into drug treatment, and in some cases, they terminated the relationship if the partner did not change high-risk behavior. One client of Tu, Mujer, a 38-year old sexual partner

[28] Tú, Mujer Progress Report.

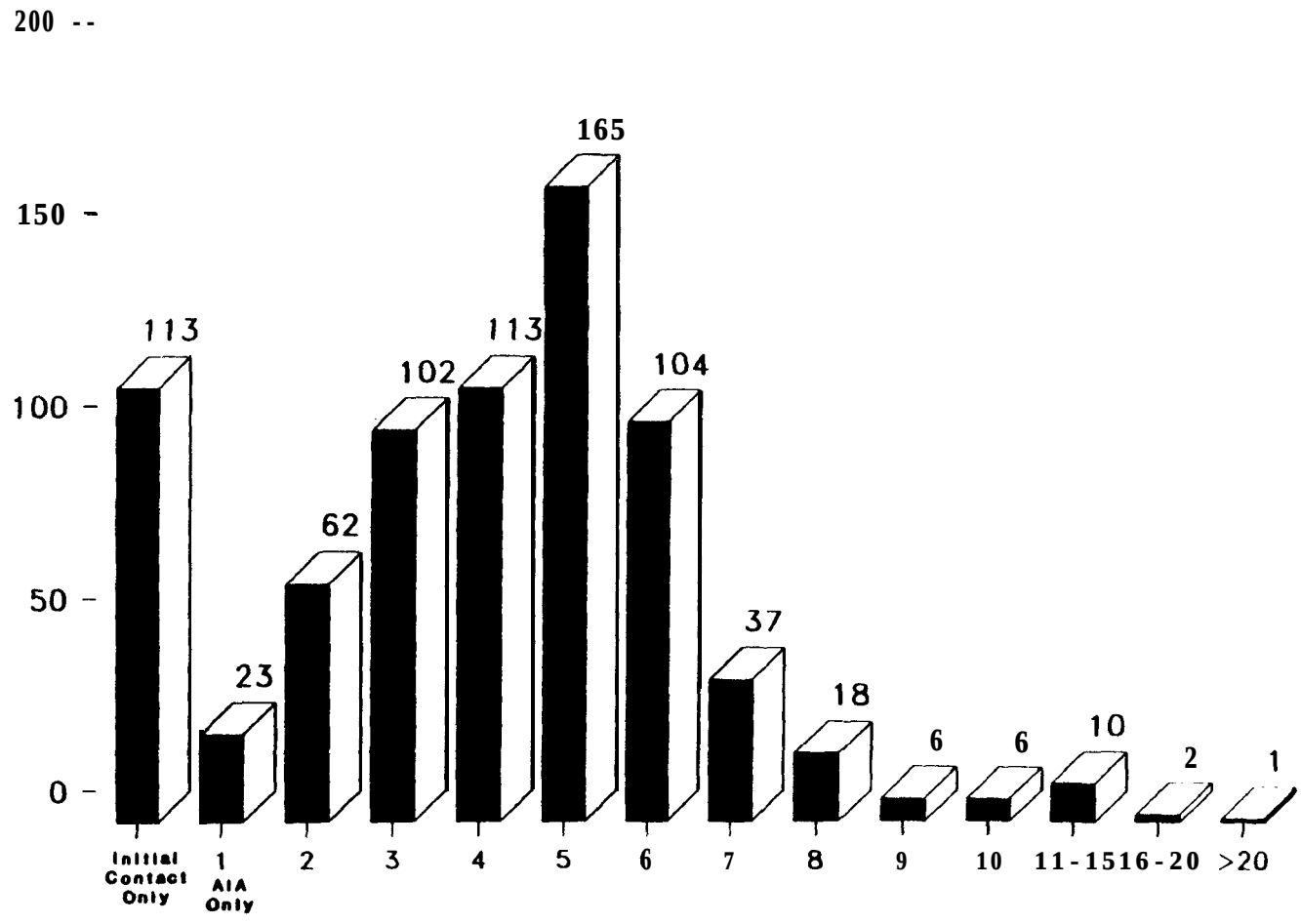
Figure 17
Type of Intervention Among **AIA** Interviewees
San Juan (N=649)



Cumulative (3 years)

Source: Abt Associates
Process Evaluation Data

Figure 18
Frequency of Encounters With Project, All Initial Contacts
San Juan (N=762) Cumulative (3 years)



Number of Encounters Post Initial Contact

of an IDU, received in-depth counseling from project staff. She was HIV-negative but her husband was positive and he had left her. She initially sought a reconciliation. With the help and support of the project, she demanded that her husband use condoms with her. When he refused, she gave up her attempts at reconciliation and permanently broke off the relationship. At the time of the AFA, she had increased condom use with her sexual partners. She praised the intervention style of Tu, Mujer: "I am more at ease now and am not confused any longer. "[29]

Group interventions consisted primarily of community-wide presentations by staff that may or may not have involved project participants. Smaller educational workshops were conducted specifically for project participants. In these workshops the main topics were sexuality issues, such as negotiating safer sex with a partner, and health promotion issues, such as nutrition and stress reduction. The workshops were presented in a psychoeducationai framework where educational and therapeutic strategies complemented each other. Since, for many clients, their roles as mother and spouse may have taken precedence over their individual well-being, group facilitators addressed issues of self-esteem, helping women to consider in equal measure their multiple roles as women. Through this integration process, group interventions helped women to make taking care of themselves more of a priority in their lives.

Some of the strategies used in these groups included audiovisual materials on condom use. Using videotapes in the groups also helped to attract women to meetings. Videotapes such as Changing the Rules, Olga's Story, and Ojos aue no ven were received positively and usually generated group discussion.

Individual counseling sessions far outnumbered group interventions in San Juan, in marked contrast to the Juarez project. The importance of providing individualized attention and the central place of HIV counseling and testing are two explanations for this. Most of the behavioral change goals of this Project were addressed in individual counseling, and Tú, Mujer's staff were confident about the effectiveness of this approach. Issues of confidentiality also help to explain the emphasis on individual work. Many of the women preferred a confidential one-on-one session to a group, where they'may have been seen by people from the neighborhood. There is a pervasive stigma attached to anything associated with HIV.

Project staff also believed that there were important generational differences in attitude. Younger women felt more comfortable in groups than did older women, who seemed generally more conservative and did not care to discuss sexuality and other sensitive matters in public. Educational "capsules"

[29] Proyecto Tu, Mujer process data submitted to Abt Associates.

administered individually became increasingly popular with older women and, staff believed, came to be a viable alternative to group sessions.[30]

Tú, Mujer staff developed a modified case management approach. They helped women get drug treatment for their partners as well as medical care and other social services for themselves. Finally, another intervention service was longer-term follow-up and psychosocial support for a small number of Project participants. Although the program moved constantly from housing project to housing project, staff stayed in contact with a number of women who needed additional support beyond the standard interventions. This was done mostly with women who were still adjusting to a positive HIV test result. In cases like these, continuity of care became an issue for staff.

There are several good examples of how Tu, Mujer staff were able to work with and help women just learning of their HIV-positive status. One 34-year-old sexual partner of an IDU, with four children, had eleven followup and counseling sessions with staff. These included pre- and post-test counseling, during which she learned of her seropositivity. This client reported that the staff provided "interesting and useful information" in a way that inspired confidence and helped her cope with her condition. With the assistance of Tu, Mujer staff counseling, she increased her condom use from the AIA to AFA. She also became a spokesperson for the need for better medical services for HIV-infected persons in Puerto Rico, testifying before the National Commission on AIDS when it held hearings in San Juan."

Another client, a 27-year-old sexual partner with four young children, also learned she was HIV-infected through Tu, Mujer's counseling and testing program. Though she only had three followup contacts with project staff, she was extremely enthusiastic about the services provided: "If it hadn't been for you I would not have found out I was positive. Now that I know, everything in my family has changed. My husband and I are in treatment, and I'm taking better care of myself and my family." At the time of the AFA, the client said she was more involved with her community and was considering becoming a volunteer for an AIDS service organization.%

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[30] Personal Communication, Carmen Alvarez and Abt Associates Staff, August 6, 1990.

[31] Proyecto Tu, Mujer process data submitted to Abt Associates.

[32] Ibid.

4.0 Impact Evaluation Results

The impact evaluation of these HIV prevention programs was based on a repeated measures quasi-experimental design.[1] Respondents were tracked over time from the baseline interview (AIA) through participation in program interventions (if any) to the followup interview (AFA). Changes in HIV-related risk behaviors (i.e., unprotected sexual activity, needle cleaning practices, and drug use) from baseline to followup were investigated as program outcomes. Confounding factors, including self-selection into program participation and attrition from the followup interview, were considered as competing explanations of findings.

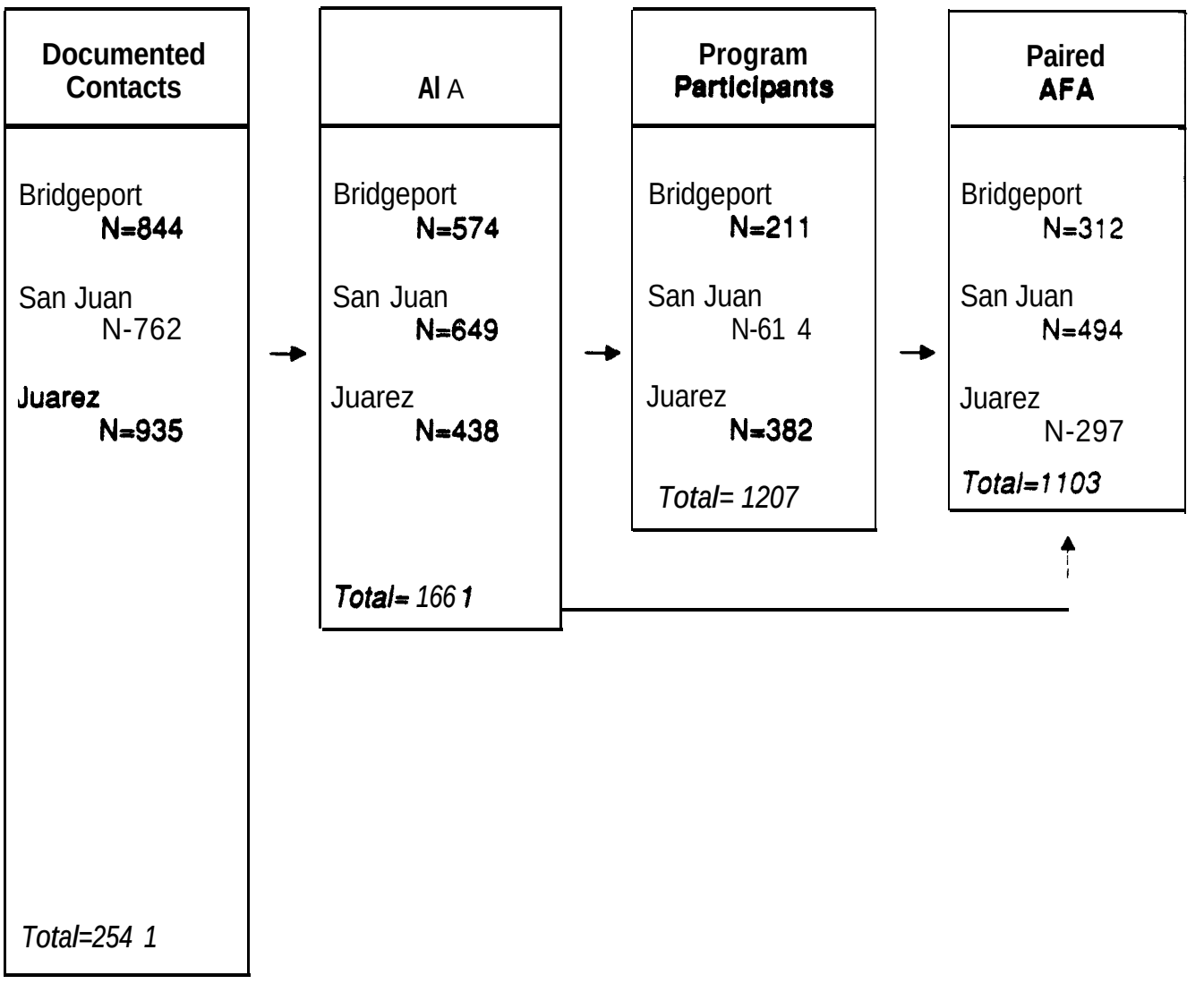
4.1 Analysis Model and Measures of Participation

Our analytic model is summarized in Figure 19. There are four points at which participation can be analyzed: 1) reaching the target population in the community; 2) recruiting women contacts for baseline interviews (AIAs); 3) recruiting interviewees for interventions; and 4) retaining baseline interviewees for followup interviews (AFAs). Indeed, Figure 19 shows that there was significant attrition in all 3 sites but twice as much in Bridgeport and Juarez as in San Juan. Also the distribution of attrition across intervals of participation differed. In Bridgeport, there was substantial attrition in all 3 stages: contact-to-AIA (32%), AIA-to-participation (63%) and AIA-to-AFA (46%). Overall, 312 (37%) of 844 women initially contacted are included in our analysis of outcome. In Juarez, attrition was heavier in the contact-to-AIA (53 %) and AIA-to-AFA (32 %) intervals than in the AIA-to-participation stage (13 %). Overall, of 935 contacts only 297 (32%) were included in the Juarez outcome analysis. Finally, in San Juan, attrition was concentrated in the AIA-to-AFA stage (24%) as opposed to the contact-to-AL4 (15%) and AIA-to-participation (5%) intervals. In San Juan, 494 women of 726 initially contacted (65 %) are included in the outcome analysis.

These figures raise serious questions of selection bias which must be addressed at each stage of the analysis. For example, if only women who were "ready" to change, were already well informed, or had minimal problems were contacted by the projects, returned for interviews, or participated in the

[1] "Repeated measures" means that the behavior of interest was measured at two points in time. The evaluation centers on whether the change between these two points in time was statistically significant using tests explained in this chapter. The evaluation lacked an experimental design, so a "quasi-experimental design" was used. The essence of quasi-experimental design is to examine and when possible, dismiss alternative explanations for any behavioral change.

Figure 19
Analytic Model



Sources of Data:

Initial Contact **Sheets**	**AIA**	Process Data Forms:	AFA
Program Logs		Follow-up **Counselling** Group **Form** **Program Logs**	

interventions, we would have no way of knowing whether the services (or, indeed, any services) were critical in producing change.

Literally thousands of women were contacted in outreach settings. Recording those contacts is not an inconsequential task. However, while it is tempting to see persons who consented to the AIA as the universe of eligible contacts, most programs reported that this was simply untrue. Of the many eligible persons contacted, only some consented to an interview. This is the first point of program success and is one critical to understanding and redesigning outreach strategies. Several questions arise: who is lost, turned off, or unable to engage further in intervention activities? Can outreach be restructured to be more effective in this initial engagement phase? Without information on who was contacted but did not consent to an interview, such analyses cannot be accomplished.

For these analyses we used the following definitions.

1. "Outreach" means contacting persons potentially eligible for participation in the community or at the program storefront/site.

2. "Contact" means reaching a potentially eligible person in the community and engaging her in a verbal exchange related to program activities. This was recorded on the initial Contact Sheet. If the woman made contact but did not consent to, or engage in, an AIA, she was referred to as "Contact Only."

3. "AIA Only" means an individual was contacted (and data collected through the Initial Contact Sheet) and completed an interview, but did not participate in any of the subsequent intervention services.

4. "Participation" in interventions was defined differently across the three sites due to the actual patterns of participation revealed in the process data. In Bridgeport, a large number of women who completed an AIA did not return for any significant intervention activity. Therefore, for analytic purposes we created a dichotomized variable in which an "active participant" was anyone who received at least one hour of intervention or had more than one intervention encounter; all others were considered "passive participants." In San Juan and Juarez, by contrast, almost all women who completed AIAs participated in substantial intervention activities. In these two sites, we categorized women by their total time in intervention activities: various categorizations were used for different analyses. Data on participants includes the Initial Contact Sheet, AIA and any program process data appropriate to her participation (Followup, Counselling, and Group Forms).[2]

5. "Paired AIA/AFA" refers to those women who completed both AIA and AFA interviews. Within this group are both program participants and non-participants, differentiated in analysis by level and type of participation.

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[2] Program participation data were analyzed extensively using a variety of techniques and model specifications. Substantive conclusions are not sensitive to those alternative techniques and approaches, and the results presented in this chapter should be considered representative.

We examined the flow of subjects through project components (Figure 19). At each point in ***the flow,*** we attempted to predict movement to the next stage, based on characteristics of the individual. For example, what preexisting characteristics differentiated the "contact only" group at each site from ***those*** who consented to be interviewed and/or from those who actually participated in interventions? Ideally, the contact data would be quite detailed for these purposes. However, the nature of this data collection (conducted on the street, attempting to record all contacts of any duration) did not allow "interviewing" in detail. In addition, in Juarez and San Juan, there was very little attrition between AIA and participation, thus vitiating the meaning of some of the planned analytic comparisons.

The first contact occurred on the street, in the project office, or elsewhere in the community (e.g. in a bar, brothel, housing project community center, or private home). In addition, two of the sites had free-standing offices in the community so that some initial contacts were "walk-ins." The third site contacted most clients through community outreach. The second point in our analysis is the AIA interview, the third is participation in the program, and the fourth is the AFA. Our analysis of participation is presented in Section 4.4.

4.2 Outcome Measures

The impact analysis used data from a variety of sources. Baseline characteristics such as demographics, drug and needle use, sexual behavior, and health status were measured based on responses to the AIA interview. Participation in program interventions, including individual and group counseling, was measured through a detailed process data collection system specifically design for this project. Followup measures were based on responses to the AFA interview. Changes in HIV-related risk behaviors were measured by contrasting responses on the AIA and AFA.

Changes in the extent of unprotected sexual behavior, drug use, and needle cleaning were examined as program outcomes. Using several original items from the AIA and AFA, scales were developed for each risk behavior. The "extent of unprotected sexual behavior" was computed as the highest frequency of any reported sexual act without a condom, coded from 0 for the least risk to 6 for the greatest risk. Drug use was measured on a continuum ranging from abstinence (coded 0) to abusive use of many drugs (coded 5). The needle cleaning scale represented the frequency of effective cleaning methods (i.e., the use of bleach, alcohol, or boiling water); values ranged from 0 for no effective cleaning to 1 for "always cleans effectively."[3]

[3] For a detailed description of the development of these scales, see T. M. Hammett et al., ***AIDS Outreach to Female Prostitutes and Sexual Partners of Intravenous Drug Users: Second Annual Report***

Behavioral change was measured as the difference in the risk behavior scale as reported on the AFA and the risk behavior scale as reported on the AIA. However, we were concerned that the scales might be nonlinear, meaning that a behavioral change from, for example, a level of 2 to a level of 1 may be quantitatively different than a change from a level of 5 to a level of 4. Thus, the extent of behavioral change reported might depend importantly on how these scales were interpreted.

Our approach to this problem was to transform the risk behavior scale prior to analysis. Although we first used a generalized transformation called a Box-Cox power transformation, we abandoned this as impractical, and instead used three simple scale transformations:

- The linear form is simply $S_2 - S_1$, where S_i means the value of scales S and i denotes the AIA (i = 1) or the AFA (i = 2).
- The logarithmic form is $Log(S_2 + 1) - Log(S_1 + 1)$. The number 1 was added to each scale to assure that computations did not attempt to take the logarithm of 0, a number that does not exist.
- The reverse logarithmic form is $Log(M-S_2 + 1) - Log(M-S_1 + 1)$, where M is the largest value that the scale takes, and other notation is the same as defined above.

Figure 20 represents the three transformations on a graph. As shown, the linear form places equal weight on behavioral change at all levels of the behavioral scale. The logarithmic form puts the greatest weight on behavioral change at the lowest level of the scale by somewhat discounting behavioral change at the highest level. The reverse logarithmic form puts the greatest weight on behavioral change at the scale's highest level.

The multivariate statistical analysis was repeated using each of these three scales. Greatest confidence would be placed in findings that were invariant with respect to the transformation used (except that the direction of change should be the opposite for the reverse logarithmic and the other two scales). Results are presented later in this chapter.

4.3 Issues in Evaluating the Impact of the Three Programs

As was discussed earlier, each of the three sites is unique in many important ways. In particular, there were important differences in the characteristics of the target populations and the outreach and intervention strategies used. Project staff in Juarez implemented a series of group

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to NIDA, December 1990, Appendix B, "Data Reduction, Scale Development, and Initial Outcome Analysis."

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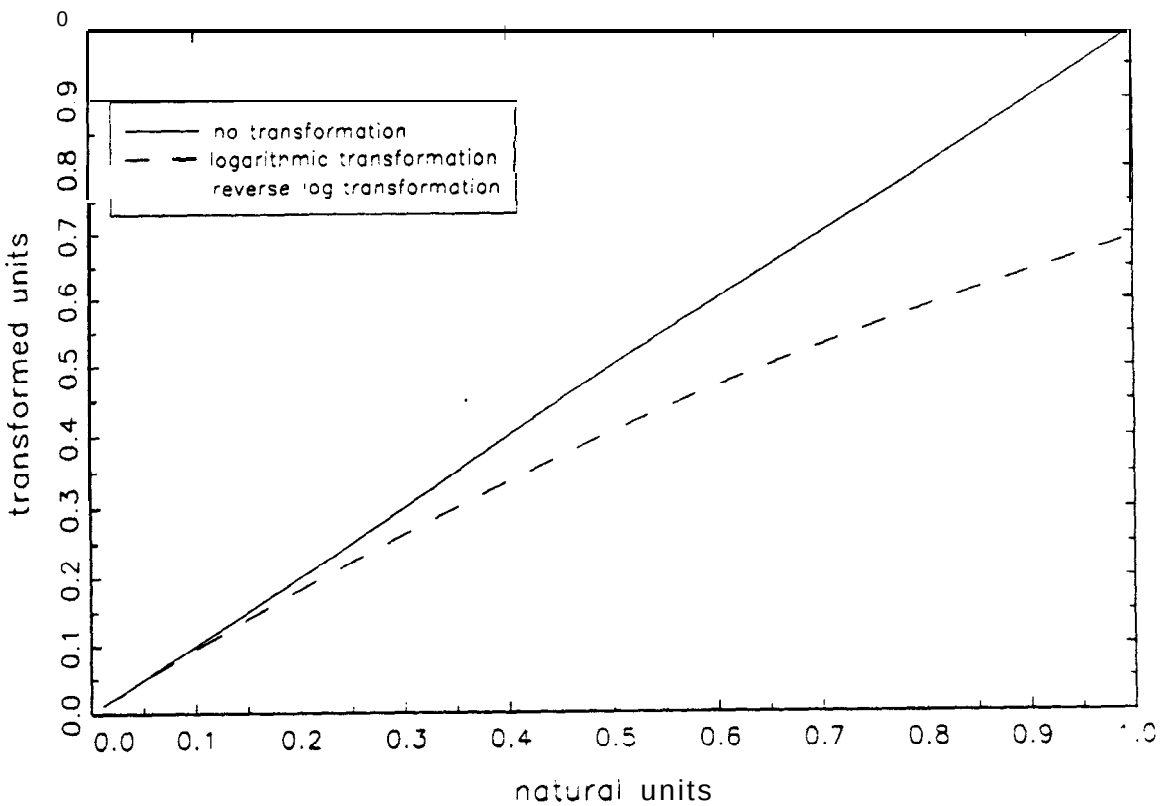
Figure 20 -- Transformations of a Hypothetical Scale



counselling sessions, while staff in San Juan emphasized individual pre- and post-test counselling. The Bridgeport site, on the other hand, implemented an informal intervention where participants could spontaneously appear to talk with staff and other clients, and to secure prevention supplies or other services offered by the program. Because of these program differences, data from the three programs cannot be merged; the analysis reported here distinguished the interventions by site.

Another distinction is that Bridgeport is the only site in which a sizable number of eligible women who completed AIAs did not subsequently receive any significant program interventions. These "non-participants" (defined as those receiving anything less than one hour of intervention and less than two intervention encounters) comprise a comparison group against which the behavioral change for "participants" can be compared. In the other two sites, by contrast, nearly all AIA respondents received program services. In those two sites, those whose participation was minimal, based on the amount of intervention activity time reported in the process system -- were compared with those who spent more time in intervention activities. This analysis placed. women on a continuum of "time spent in intervention activities. "

Issues of selection bias arise in all three sites. Women who actively participated in intervention activities may differ from those who participated minimally or not at all, and those differences rather than program effectiveness per se may account for behavioral changes that otherwise would be attributed to the effectiveness of the intervention.

A traditional way of dealing with this form of selection bias is to use regression analysis to predict program participation based on the subject's characteristics or other variables. Predictions from the regression are then substituted for the original measure of program participation. This method is practical, however, only when program participation can be predicted with accuracy. As this chapter reports, program participation could not be predicted accurately with the variables at our disposal. Thus, this form of selection bias -- to the degree that it exists -- remains to confound the analysis.

A second form of selection bias is reflected in the fact that only some subjects completed an AFA. It seems possible that those subjects who returned to answer the AFA differed from those who could not be reinterviewed, and that these differences rather than program effectiveness per se may account for behavioral changes that otherwise would be attributed to the effectiveness of the intervention. To deal with this form of selection bias, we took two steps. First, we introduced covariates (such as age or race) into the analysis; second, we used statistical routines often employed for dealing with selection bias, These two steps are discussed later in this chapter.

4.4 Impact Evaluation Findings

4.4.1 Self-Selection at Each Stage of Program Participation

Selection occurred at every stage of staff interaction with potential clients. Only those prostitutes and sexual partners of IDUs who could be located by outreach workers were contacted. However, the selection that occurred at this stage (that is, which members of the target populations were contacted) cannot be measured without systeinatically collected data on these target populations as a whole, which were not available.

As discussed earlier, three forms of selection are germane to this evaluation. First, of all women contacted, only some completed an AIA. Second, of those women who completed the AIA, only some chose active participation in interventions. Third, only a portion of participants and non-participants (or those with more and less active participation in interventions) completed the AFA interview. This section explores differences between contacts and AIA respondents, between intervention participants and non-participants, and between AFA respondents and non-AFA- respondents.

Those contacted by the project who did not complete the baseline interview were compared to AIA respondents based on the limited demographic measures taken at the time of initial contact for two of the sites. (San Juan did not systematically collect information on initial contacts who failed to complete AIAs.) Selection into active participation in interventions could be investigated more thoroughly in that all who completed AIAs could be compared on any AIA measures of interest. Likewise, attrition between baseline and follow-up interviews was assessed baaed on responses to the AIA, comparing those who did and did not respond to the AFA. Data potentially relevant to selection include demographics, target group membership, illegal activities, drug use, unprotected sexual activity, and health status. The data collection instruments used in the study did not permit us to determine level of need for services, receptivity, or motivation for change. All of these factors are likely to affect selection.

1) Who Completed AIA Interviews?

As already described, outreach strategies differed across sites. This is reflected in the distributions of contacts and AIA interviewees by target populations across the three sites. In Juarez, the project recruited far more prostitutes than sexual partners of IDUs. In San Juan, the distribution was reversed. In Bridgeport the project reflected a more balanced distribution but included more prostitutes than sexual partners (see Figure 3, above). In general, aggressive street-based strategies can encounter

a large number of eligible women. It will favor women who are on the streets -- commercial sex workers (both IDU and non-IDU), and attract fewer sexual partners. Conversely, home-based strategies will likely attract more sexual partners.

While a large number of women eligible for the project were contacted in each site, not all consented to be interviewed. Figure 21 shows the sites' "capture rates" from contact to AIA. Attrition from contact to AIA did not follow a single pattern. Only in Bridgeport did capture rates differ sharply in the two target populations. Attrition seemed unrelated to variables such as education, age, level of AIDS information, and area of contact. There were some statistically significant differences between contacts and AIA interviewees in Bridgeport:

- 40 percent of all contacts were prostitutes. Nearly 80 percent of these completed an AIA. IDU prostitutes had a slightly lower capture rate of 74% for AIA interviews ($p < .0001$).

- Almost three-fourths of contacts in their twenties and thirties were interviewed, as opposed to between 40 and 60 percent of those from other age groups ($p < .0001$).

- Three-quarters of all the black women contacted were interviewed, compared to 64 percent of white women contacted and just over half of Hispanic women contacted ($p < .0001$).

Most contacts and AIA respondents in Juarez were non-IDU prostitutes; but overall capture rates for prostitutes and sexual partners were similar. Women under twenty years of age were least likely to respond to the AIA ($p < .001$).

The San Juan program did not collect extensive information on initial contacts who did not submit to AIAs. Therefore, the selection bias into thisstage of participation cannot be analyzed for San Juan.

2) Who Participated in Interventions?

This part of the analysis addresses the questions: who, after being interviewed, was engaged in the interventions? How do the groups differ? Was there something about the participants or about the interventions available which increased or decreased participation?

As described above, the distribution by target populations of women who participated in interventions differed across the three sites. In Juarez and Bridgeport, most of the participants were prostitutes, while in San Juan most were sexual partners of IDUs. The ranges and patterns of participation in each site were also quite different, in part due to curricular differences in the programs.

Figure 21

Capture Rates for Sexual Partners and Prostitutes from Contact to AIA[a]

	Sex Partners	Prostitutes
Juarez	47%	47%
San Juan	86%	82%
Bridgeport	53%	77%

[a] Assumes the initial contacts with unknown categorization were distributed evenly across the two target populations.

All programs, however, had a large number of persons who participated for only one or two sessions or services as well as regular and almost chronic participants.

As shown in Figure 22, each program also differed in its "capture rate" at this point. The inordinately high rates shown for San Juan are principally the result of program operations, Most women who were interviewed were engaged in some intervention activities on the spot. They were also likely to be in a less public setting and perhaps more likely to stay for some of the services offered. Another factor in San Juan's high capture rate was that the project intervention's focus on HIV counseling and testing, which seems to have interested many interviewees immediately. In the other two sites there was more likely to be some period of time between AIA and participation in intervention activities and thus a larger dropout rate. Still, it should be noted that Juarez's capture rate for participation was quite high.

Possible self-selection into participation was tested using measures from the AIA. First, the relationship between participation and various AIA measures was examined using crosstabulations. Second, the associations found in the crosstabulation tables were confirmed using multivariate analysis. As discussed earlier, the dependent measure for participation in Bridgeport was dichotomous, so logistic regression was used. For the other two sites, participation was measured as an interval level scale (with categories ranged from less than one hour to five hours or more), so ordinary least squares multiple regression and ordinal logistic regression were used. The results from both the crosstabulation tables and the multivariate regression tests are summarized below.

Bridgeport AIA respondents were categorized as participants or non-participants according to the definition given earlier in this chapter and compared on a wide range of available AIA measures. The crosstabulation tables revealed no significant difference between participants and non-participants on the following measures: family structure, employment status, major source of income, involvement with the criminal justice system, drug use, and drug treatment history.

However, Bridgeport participants did differ from non-participants along other dimensions measured by the AIA.

- High school dropouts (40%) were more likely to participate in the program than were high school graduates (24%) ($p < .001$).
- Homeless women (43 %) were more likely to participate than were those who had more stable living arrangements (32%) ($p = .10$)
- Blacks (29%) were least likely to participate; Hispanics (44%) and whites (40%) had higher participation rates ($p = .01$).

Figure 22

Capture Rates for Sexual Partners and Prostitutes from AIA to Participation

	Sex Partners	Prostitutes
Juarez	84%	88%
San Juan	95%	89%
Bridgeport	32%	39%

-- Sexual partners (27%) were slightly less likely to participate than were either IVDUs (37%) or prostitutes (35%), although the effect was not statistically significant ($p = .12$).

-- Among the 146 IVDUs studied, those who failed to consistently and effectively clean their needles (according to the AIA) were more likely to participate in the program than were IVDUs who reported they always cleaned their needles: 58 percent of those who never cleaned, 35 percent of those who sometimes cleaned, and 28 percent of those who always cleaned were active participants ($p = .02$).

-- Finally, women who were in poorer health were also somewhat more likely to participate in the program ($p = .22$).

The above relationships were tested in a multivariate logistic model. Our original analysis suggests that we attracted the most "needy" women, but, when all the factors were included in the model. only race and target population were found even to approach statistical significance in predicting participation: Black women were less likely ($p < .10$), and non-IVDU prostitutes were somewhat more likely ($p < .10$), to participate in the Bridgeport program.[4] Age and schooling were only significant at $p < .20$, but these effects should not be dismissed out of hand. These results indicate that some selection is taking place: Participants "look" somewhat different from nonparticipants. However, the AIA is not an especially rich source of data about factors that may promote and inhibit program participation, and unmeasured variables may be much more important in explaining rates of program participation.

In general, the regressions did not predict participation well: 63 percent of the observations would have been predicted correctly by chance; the percentage increased only to 69 percent using the regression analysis.

Juarez respondents were nearly all program participants, so the only meaningful investigation of selection bias was based on the extent of participation. Defining active participation as three or more

[4] Program participation rates fluctuated over time. During the early stages of the program's implementation, the participation rate was especially high. The rate then declined steadily, reaching its nadir between month 13 and 15, but recovered somewhat in the next quarter only to decline precipitously toward the project's conclusion. These fluctuations may have been related to personnel and staffing issues in the project, as well as to the site coordinator's serious illness and ultimate departure in the project's closing months.

hours of total time in intervention activities, the crosstabulation tables revealed several significant factors associated with participation:[5]

- Participation was inversely associated with education level: 58 percent of those with less than an eighth grade education spent 3 or more hours in the program compared to 50 percent of those with a high school degree ($p = .14$).

- Sexual partners (60%) were more likely to participate actively than were prostitutes (54%) ($p = .01$).

- Those who were currently facing criminal charges (41 %) were more likely to participate for more than six hours in the program than those who were not facing charges (24%) ($p = .017$).

- Finally, the majority (70%) of those who stated they were in excellent health participated for two hours or less, compared to around 40 percent of all others. Likewise, 32 percent of those who believed they were in poor health participated for more than six hours in the program, compared to just eight percent of those in excellent health. Those who perceived their health as good (the majority of respondents) were about equally likely to participate at ail levels, while the third of the sample with fair health were likely to participate in the middle range of one to six hours ($p = .006$).

The role of these factors in explaining the extent of participation in the Juarez program were tested in a multivariate model. Taken in combination, the factors explained very little of the variance in the extent of participation ($R^2 = .06, F = 1.39, p = .14$). Further, none of the individual factors were significantly related to participation when the other factors were held constant. Whatever relationships that were found in the crosstabulations were too weak, or involved too few cases, to hold up under more rigorous multivariate investigation.

We did find some differences in recruitment over time, but these seemed to be limited to a smaller likelihood that early recruits participated heavily in the program. This may be attributable to slow start-up. After the first quarter of program operation, few differences appeared in the intensity of program participation.

[5] Many other factors were found to be unrelated to participation, including: age, family structure, living situation, employment status, major source of income, and drug treatment history.

We conclude that there is no direct evidence that program participation was a function of client characteristics. However, the AIA is not a rich source of data for distinguishing among clients; active and passive participants may differ based on unmeasured characteristics.

In San Juan, where HIV testing was the primary program intervention, the majority of clients had total intervention times of one to two hours, about the amount of time needed for pre-test and post-test counselling. Associations with participation reflect for the most part those subgroups who were unlikely to fall into the one to two hour range either because they were not tested and received less than one hour of service, or because they received some service beyond HIV testing.

Several variables distinguished program participants.

- Participation was most strongly associated with target population ($p < .001$). Almost all of the women who participated in the San Juan program were sexual partners of IDUs, and 65 percent of these participated for one to two hours. In contrast, over 50 percent of the IVDUs participated for less than one hour, and only 27 percent fell in the middle range associated with HIV testing. Prostitutes were similar to sexual partners in their amount of participation, although a larger proportion of them participated for less than one hour (33 % versus 25 % of sexual partners).

- Similarly, those who reported having had an illegal source of income in the six months prior to the AIA were also less likely to participate for more than one hour (58% versus 74% of others, $p < .001$), as were those who had been in jail in the previous month (62% versus 74% for others).

- Heavy polydrug users were less likely to participate for more than an hour (63%) than were low-level users (80%) and those who abstained from drugs (74%) ($p = .002$).

- Those respondents who described their current health as poor (24%) were slightly more likely to participate for three hours or more than others (10% overall participated at this level) ($p = .157$).

Because participation was best measured on an ordered scale (1 = AIA only; 2 = less than 45 minutes; 3 = 45 minutes to 2 hours; 4 = over 2 hours), we used an ordered logit model to test the relationship between program participation as the dependent variable and client characteristics and chronological time. The only strong effect was when the client took the AIA: Active program participation fell during the last two quarters of the program's operation. Otherwise, there was some evidence that IDUs, those who abused multiple drugs, and those who were in jail were the least likely

to be active participants; non-IDU prostitute were somewhat more likely to be active participants. The t-scores for these parameter estimates were only somewhat larger than 1 .O, however, so the effects cannot be considered strong.

3) Who **Completed AFA Interviews?**

The interval from AIA to AFA was analyzed in much the same way as self-selection into participation. Those who completed an AFA were compared to those who did not, first using crosstabulations and then via logistic regression analyses. Figure 23 shows the AFA capture rates by target population in the three sites.

Bridgeport had the lowest overall capture rate for the AFA, just 54 percent. A few AIA measures differentiated AFA respondents from those who completed only the **AIA**.

- Black women (58%) were more likely to return to take the AFA than were Hispanics **(51%)**, whites **(44%)**, and other (27%) **(p = .038)**.
- Non-IVDU prostitutes were the most likely **(59%)**, and **IVDUs** (47%) were the least likely, to complete the AFA **(p = .077)**.
- Those who had been in jail in the month prior to taking the AL4 (60%) were more likely to return to take the AFA than were those who were not in jail (48%) **(p = .005)**.

Based on logistic regression analysis, subjects who returned for the AFA differ from those who did not complete the AFA. Some of the differences identified above persist: race, pre-program incarceration, and cocaine use. Furthermore, the more time that a subject spent with the program's intervention, the more likely that individual was to be located for **a followup** interview. Such a relationship seems reasonable, of course, as the program staff is both more likely to locate active participants than passive participants and to convince them to be interviewed. Also noteworthy is the temporal pattern of AFA interviews; the program was less likely to reinterview those subjects who had first been interviewed during the project's first year than during its second **year.**[6] In this site the regression's ability to predict AFA completion is moderately good. **The regression** predicts 66 percent correctly. By chance, we would expect to be correct about 50 percent **of the** time.

[6] **These** temporal patterns are especially important to this analysis. They allow us to identify the structural equations used to adjust for selection bias, an important but technical aspect of using those adjustment techniques.

Figure 23

Capture Rates for **Sexual Partners and Prostitutes from AIA to AFA**

	Sex Partners	**Prostitutes**
Juarez	63%	70%
San Juan	78%	59%
Bridgeport	**54%**	**5596**

Juarez had a better overall AFA return rate than did Bridgeport: nearly 68 percent of all the AIA respondents also completed the AFA. The factors that appeared to be related to completing the AFX on the crosstabuiation tables were:

- -- High school graduates (47%) were less likely to take the AFA than those with less education--about 70 percent for ail others ($p = .005$).

- -- Non-IVDU prostitutes (71%) were somewhat more likely to take the AFA than were sexual partners (63 %) and IV drug users (38%) ($p = .07$).

- -- Those who reported illegal income were also more likely to respond to the AFA (71% vs. 62% for others) ($p = .047$). However, the few AIA respondents who were currently involved with the criminal justice system, either on probation or parole or facing current charges, were less likely (47%) to take the AFA (70% for others) ($p = .001$).

- -- Finally, those who abstained from marijuana use (72 96) were more likely to take the AFA than occasional (62%) and, especially, heavy users (45%) ($p = .018$).

In the logistic regression analysis, several AIA measures were found to be significantly related to completion of the AFA. The most important factors were the time period when the AIA was completed ($p < .001$), and the extent of participation in the program ($p < .0001$). Those women who were recruited into the program early on were least likely to take the AFA. It appears that capture rates for the AFA were relatively low before the project's fourth quarter ($p = .006$ for first quarter; $p < .0001$ for second quarter; $p = .017$ for third quarter). The more often a woman participated in the program, the more likely she was to take an AFA, probably because those actively engaged in me program were more readily located for followup ($p < .0001$).

Furthermore, non-IVDU prostitutes were more likely to return for the AFA ($p = .05$) than sexual partners or IVDUs, as were those who had not graduated from high school ($p = .03$). Finally, those who reported illegal sources of income ($p = .01$), those who were currently involved with the criminal justice system ($p = .045$), and those who used marijuana pre-program ($p = .008$) were least likely to respond to the AFA when all other factors were held constant.

Predictions based on the regression analysis were a moderate improvement over chance. Based on the regression, participation was predicted accurately in 75 percent of the cases. Based on chance alone, the predictions were accurate about 62 percent of the time.

San Juan had the best overall AFA response rate: respondents also took the AFA. In San Juan:

-- Sexual partners were the most likely (78%) to take the AFA; prostitutes (59%) and IV drug users (47%) had a lower return rate ($p < .0005$). This probably explains why women reporting illegal sources of income ($p = .006$), women who had been in jail ($p = .03$), and those who had contracted a sexually transmitted disease pre-program ($p = .053$) were all less likely to be AFA respondents.

-- Drug use was also negatively related to AFA response. The relationship was especially strong for heroin users ($p = .0009$), only 53 percent of whom took the AFA compared to 78 percent of those who did not use heroin and 68 percent of those who used it at a low level. Similarly, 63 percent of those who used cocaine heavily answered the AFA relative to 76 percent of those who were moderate users and 78 percent of those who were heavy users ($p = .10$).

These factors were combined in a logistic regression equation. Of all the factors tested the time when the AIA was administered and amount of participation were most strongly related to returning for the AFA. Early AIA respondents were less likely to be administered an AFA ($p = .0005$ for second quarter and $p = .026$ for third quarter); active participants were most likely to return for the AFA ($p < .0001$). Only two other factors were found to be related to taking the AFA in the logistic regression analysis, and their effects were only marginal when all other factors are held constant. Non-IVDU prostitutes ($p = .091$), and those who had contracted a sexually transmitted disease ($p = .097$) pre-program were somewhat less likely to return for an AFA, However, parameters associated with the variables "health" ($p = .178$) and "heroin use" ($p = .138$) -- although not significant at $p < .10$ -- should not be ignored.

These regressions were a moderate improvement over chance. Using the regressions, 79 percent of those who did and did not complete the AFA were predicted correctly. By chance, 69 percent were correctly predicted.

In summary, in all three sites, those women who completed the AFA interview differed from those women who did not complete this followup interview. We note especially that active participants were more likely to answer the AIA than were passive participants. This observations raises the speculation that those women who successfully change their behaviors may be more likely to answer the AFA than those women who are less successful. (This follows if we concede that active participants are more likely than less active or non-participants to be motivated to change and thus more likely to be

successful at changing.) A simple comparison of responses on the AFA and AIA could, consequently, be deceptive.

4.4.2 Program Impact

The principal purpose of the evaluation was to determine whether the interventions helped program participants to reduce the behaviors that placed them at high risk for HIV infection. Earlier sections of this chapter emphasize why this question cannot be answered with a direct comparison of the behavioral changes of those who participated in the programs and those who did not. No control group was available. instead, we were forced to compare the behavioral changes by those who were more active participants (as defined above) and those who were passive participants.

Such comparisons are treacherous. Active participants were self-selected from among all participants, and as a result, active and passive participants had measurable and probably unmeasured differences. Those differences, rather than program participation per se, may account for what otherwise would be attributed to program effectiveness.

Furthermore, both active and passive participants were self-selected to complete the AFA. It seems reasonable to assume that a number of factors, including behavioral adjustments themselves, might have motivated subjects to return for an AFA interview. It is especially disturbing that, as a group, those individuals who were active participants were more likely to return for the followup interview than those who were less active in program interventions.

Three steps were taken to reduce the bias that might otherwise arise from these processes of self-selection. First, we adopted a repeated measures research design that would be expected to reduce some forms of selection bias.' Second, we introduced covariates into the analysis in an attempt to control for selection bias that could be attributed to measurable factors. Third, we employed statistical techniques often used to model and adjust for selection bias. Even when all three are combined, however *we are* not comfortable with the inferences drawn from these data. Nevertheless, we are aware of no other steps that could improve on the inferences drawn from what are, inescapably, somewhat uninformative data and a nonexperimental design that does not yield easily to unambiguous inferences.

In the following sections, we present statistical analysis of the relationships between behavioral change (that is, changes in frequency of unprotected sexual activity, drug use, and needle cleaning) and

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[7] For a discussion of this design, see Christine Smith et al., (Abt Associates Inc.), Paterson *Health Behavior Project: Second Annual Report*, August 1991, Appendix D: Technical Description of Impact Evaluation Design.

program participation. Some behaviors are relevant only to certain sites. For example, only Bridgeport had a sufficient number of IDUs among its subjects to present any analyses of changes in needle cleaning practices. As will be seen, in fact, we only present needle cleaning changes suggestively in cross-tabulations because the numbers of valid cases are insuffkient to support multivariate analysis of program effect. Some behaviors are relevant only to subsets of subjects. For example, changes in drug use are only of interest for those who admitted using drugs prior to the AIA interview. Consequently, results are specific to sites, not all analyses were conducted for each site, and the number of subjects included in the analyses varies by topic.

First, let us examine simple crosstabulations arraying HIV-related behavior changes (as self-reported on the AIA and AFA and quantified according to the scales discussed earlier in this chapter) and extent of participation in program interventions. Figures 24-26 present changes in frequency of unprotected sexual activity, changes in the drug use scale (number of drugs abused and frequency of use), and changes in frequency of effective needle cleaning for active participants and passive participants in the Bridgeport project. Irrespective of program participation, almost half (43%) of Bridgeport subjects reported improvement regarding sexual activity; another 44 percent stayed in the same category (which, due to the methods necessarily used to define change on the behavioral scales, could mask some marginal improvement or marginal deterioration); only 14 percent deteriorated in terms of high-risk sexual activity. Almost one-third (29%) improved in terms of drug use and another 61 percent stayed in the same category. In the area of needle-cleaning, almost half (49%) showed no major change, while 39 percent deteriorated.

Thus, in terms of raw behavioral change, a substantial number of Bridgeport subjects showed some improvement. However, these crosstabulations suggest no close relationship between program participation and behavioral improvement. In particular, Figure 24 shows a virtual identical distribution of deterioration, stability, and improvement in sexual behavior among active participants and passive participants in the interventions. Figure 25 reveals very similar distributions among active participants and passive participants in changes in drug use. Figure 26, although based on a very small number of valid cases, shows that more women deteriorated in needle cleaning behavior than improved. At the same time, a larger percentage of active participants (18%) than passive participants (5%) improved in needle cleaning.

In Juarez, substantially more subjects improved in sexual behavior (31%) than deteriorated (14%), while in terms of drug use the margin was narrower but in the same direction (16% improved,

Figure 24

**Program Participation and Change.
in Frequency of Unprotected Sexual Activity from AIA to AFA,
Bridgeport**

Change in Frequency of Unprotected Sexual Activity	Passive Participants.		Active Participants'		Total	
	n	%	n	%	n	%
Increased (Deteriorated)	21	14%	20	13%	41	14%
Remained Same	66	44	65	44	131	44
Decreased (Improved)	64	42	64	43	128	43
Total	151	10096	149	100%	300	101 %[b]

• Active participants are defined as those who had one hour or more of total intervention time and more than one intervention episode. All others are considered passive participants.

[b] Due to rounding.

Figure 25

Program Participation and Change on Drug Use Scale[a] from AIA to AFA, Bridgeport

Change in Drug Use Scale	Passive Participants[b]		Active Participants[b]		Total	
	n	%	n	%	n	%
Deteriorated	19	12%	13	8%	32	10%
Remained Same	97	62	93	60	190	61
Improved	41	26	49	32	90	29
Total	157	100%	155	100%	312	100%

[a] Drug Use Scale is based on number of substances used and frequency of use.

[b] Active participants are defined as those who had one hour or more of total intervention time and more than one intervention episode. All others are considered passive participants.

Figure 26

Program Participation and Change in Frequency of Effective Needle Cleaning from AIA to AFA, Bridgeport

Change in Frequency of Effective Needle Cleaning	Passive Participants'		Active Participants'		Total	
	n	%	n	%	n	%
Decreased (Deteriorated)	8	38%	9	41%	17	39%
Remained Same	12	57	9	41	21	49
Increased (Improved)	1	5	4	18	5	12
Total	21	10096	22	100%	43	100%

* Active participants are defined as those who had one hour or more of total intervention time and more than one intervention episode. All others are considered passive participants.

10% deteriorated) (Figures 27-28). (The large percentage remaining stable in terms of drug use [74%] is largely accounted for by the fact that relatively few Juarez subjects reported any drug use at the AIA; thus, most remaining stable in this category were those who continued to report abstinence on the AFA.)

Due to the very small number of non-participants in Juarez and San Juan, participation was categorized in terms of total intervention time, rather than dichotomously as in Bridgeport, where there were a large number of passive participants. When we examine behavior change among Juarez subjects in terms of participation in the interventions, no clear associations emerge. As shown in Figures 27 and 28, behavioral improvement did not become more frequent as level of participation in interventions increased. For example, twelve percent of non-participants deteriorated in terms of sexual behavior, while nineteen percent improved. In the category of subjects with the most time in intervention activities (3 hours or more), the breakdown between deterioration and improvement was not dissimilar: 14 percent and 31 percent. Figure 28 reveals essentially the same pattern for drug use behavior change. Among those with no participation, 13 percent deteriorated and 13 percent improved; at the high end of participation, 11 percent deteriorated and 18 percent improved.

In San Juan, as shown in Figure 29, substantially more subjects improved in sexual behavior (34%) than deteriorated (11%), while almost the same proportions improved and deteriorated in drug use (13% and 11% respectively) (Figure 30). However, behavior change does not appear to be related to amount of participation in interventions. A larger proportion of non-participants (55%) than participants (24%) improved in sexual behavior. The same was true of drug use, where 17 percent of non-participants improved as compared to 15 percent of participants.

In sum, these crosstabulations reveal that, although there appeared to have been some improvements in HIV-risk behaviors, these were not associated with extent of subjects' participation in the interventions offered by the three programs.- However, the crosstabulations do not control for selection bias. Therefore, we introduce multivariate techniques that take covariates into account and introduce an adjustment for selection bias. The details of that model are discussed elsewhere.[8] As a summary, we presume that behavior Y (sex with a condom, abuse of drugs, cleaning needles) could be measured on a continuum such that:

$$Y_i = \beta X + e_i$$

where X is a column vector of factors that affect the level of Y and beta is a row vector of parameters. (An "i" subscript, designating individuals, is implicit in this formulation.) Epsilon is a random error term

[8] ***See Paterson Health Behavior Project: Second Annual Report,*** Appendix D.

Figure 27

Program Participation and Change in Frequency of Unprotected Sexual Activity from AIA to AFA, Juarez

Change in Frequency of Unprotected Sexual Activity	Total Participation Time											
	None		<1 Hr.		1-2 Hrs.		2-3 Hrs.		≥3 Hrs.		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Increased (Deteriorated)	2	12%	0	---	7	15%	1	4%	32	17%	42	14%
Remained Same	11	69	9	53	25	52	16	73	101	52	162	55
Decreased (Improved)	3	19	8	47	16	33	5	23	60	31	92	31
Total	16	100%	17	100%	48	100%	22	100%	193	100%	296	100%

Figure 28

Program Participation **and Change on** Drug Use Scale' from AIA to AFA, Juarez

Change in Drug Use Scale	Total Participation Time											
	None		< 1 Hr.		l-2 Hrs.		2-3 Hrs.		≥3 Hrs.		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Deteriorated	2	13%	2	12%	3	6%	1	5%	22	11%	30	10%
Remained Same	12	75	11	65	39	81	19	86	138	71	219	74
Improved	2	13	4	23	6	13	2	9	34	18	48	16
Total	16	101%[b]	17	100%	48	100%	22	100%	194	100%	297	100%

[a] Drug Use Scale is based on number of substances used and frequency of use.

[b] Due to rounding

Figure 29

Program Participation and Change
in Frequency of **Unprotected** Sexual Activity from **AIA to** AFA,
San Juan

Change in Frequency of Unprotected Sexual Activity	Total Participation Time											
	None		< 1 Hr.		1-2 Hrs.		2-3 Hrs.		≥3 Hrs.		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Increased (Deteriorated)	3	27%	8	10%	19	10%	17	14%	7	10%	54	II
Remained Same	2	18	43	57	110	55	58148		45	66	258	54
Decreased (Improved)	6	55	25	33	71	35	45	38	16	24	163	34
Total	11	100%	76	100%	200	100%	120	100%	68	100%	475	99%'

' Due to rounding

figure 30

Program Participation and Change
on Drug Use Scale' from AIA to AFA,
San Juan

Change in Drug Use Scale	Total Participation Time											
	None		< 1 Hr.		l-2 Hrs.		2-3 Hrs.		≥3 Hrs.		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Deteriorated	4	33%	10	13%	25	12%	14	11%	4	6%	57	11%
Remained Same	6	50	56	73	159	76	98	76	54	79	373	76
Improved	2	17	11	14	24	12	17	13	10	15	64	13
Total	12	100%	77	100%	208	100%	129	100%	68	100%	494	100%

[a] Drug Use Scale is based on number of substances used and frequency of use.

assumed to be distributed as normal. The subscript t indicates that the relationship holds for time period 1 (prior to the AIA) and time period 2 (prior to the AFA). Furthermore, Y_t has both a lower and an upper limit whose values depend on the criterion variable.

The effect of the intervention is measured as:

$$Y_2 = \beta X + \alpha T + e_2$$

where T denotes treatment. Thus, subtracting Y1 from Y2 yields the model:

$$AY = \alpha T + (e_2 - e_1)$$

Because Y_t has an upper and lower limit, so too does AY. This limit is taken into account using a two-limit tobit regression model.

Some variables may hamper or facilitate behavioral change. Call this subset of variables Z. Some of these are measurable (Z,) and some are not (Z,). Introducing these variables into the model yields:

$$AY = \alpha T + \gamma Z_1 + (e_2 - e_1)$$

where gamma is a row vector of parameters. Furthermore, we postulate that subjects differ according to their willingness to submit to the AFA. Let I index an individual's willingness to submit to an interview; then:

$$I = \delta W + e_3$$

so that an individual answers the AFA when $I > 0$ and does not answer the AFA when $I <= 0$. W is a column vector of independent variables which may include Z. We presume that the terms $(\epsilon_2 - \epsilon_1) + \epsilon$ and ϵ_3 are distributed as bivariate normal. We estimate the parameters alpha, gamma and delta jointly using maximum likelihood procedures. If the model is specified correctly, estimation of these equations jointly will eliminate the selection bias attributed to differential return rates to answer the AFA.[9]

We fit a series of models to determine whether favorable behavioral changes could reasonably be attributed to program participation. For each of the three sites, for each of the two criterion variables with sufficient numbers of valid cases to support the analysis (scaled behavior change regarding

[9] In fact, the parameters for the selection equation can be estimated consistently without joint estimation. We reported these regressions earlier. Although not fully efficient, computing algorithms are greatly simplified when these earlier parameter estimates are used in the analysis.

unprotected sexual activity and drug use), we estimated as many as 18 regressions. In 6 of the 18 regressions, the dependent variable was a LINEAR transformation of the criterion variable; in 6 it was a LOGARITHMIC transformation; and in 6 others it was a REVERSE LOGARITHMIC transformation. To define these terms, let Y, represent the criterion variable. Here i equals 2 for the AFA and i equals 1 for the AIA. Then:

LINEAR	Y_2-Y_1
LOGARITHMIC	$\log(Y_{2+1})-\log(Y_{1+1})$
REVERSE LOG	$\log(Y_{max}-Y_2+1)-\log(Y_{max}-Y_{1+1})$

where Y_{max} is the criterion variable's largest value. The LINEAR transformation gives equal weight to all values of the criterion variable. The LOGARITHMIC transformation gives greater weight to smaller values of the criterion variable than to larger values. Hence, when the LOGARITHMIC transformation is used, a scale change from 1 to 2 is given more weight than a scale change from 4 to 5. The REVERSE LOG has the opposite effect. It gives more weight to large values of the criterion variable than to smaller ones, so that a change from 1 to 2 is given less weight than a change from 4 to 5. The REVERSE LOG transformation will generally produce signs for regression weights that are the negative of the signs from the LINEAR and LOGARITHMIC transformations.

Thus, a total of 6 regressions was estimated for each of the three transformed variables. No covariates entered 3 of those 6 regressions, which are referred to as the BASE regressions. Covariates did enter the other 3 regressions, which are called the COVARIANCE regressions. Figure 31 indicates how the three variable transformations and the two regression models were combined.

Figure 31 also indicates that three different methods were used to deal with selection bias:

NO ADJUSTMENT: no special adjustment (other than the introduction of covariates) was employed.

MILL'S RATIO: the regression included the ratio of the probability of having answered the AFA divided by the density of the probability distribution function evaluated at that probability.

MAXIMUM LIK.: maximum likelihood procedures were used to correct for selection bias using the method described in the text. This approach also adjusts the regressions for censoring, that is, for the fact that behavior cannot improve for some respondents because their behavior is already the least risky according to our scale (e.g., they never have unprotected sex) and, likewise, behavior cannot degenerate for some respondents because their behavior is already the most risky according to our scale (e.g., they always have unprotected sex).

Figure 31 a -- Regression Results for Behavioral Change: Bridgeport

				Drug Use		Condom Use	
				parm	t-score	parm	t-score
Base Model	Linear	No Adjustment	R-Square		0.00		0.00
			CONSTANT	-0.63	-5.0	-0.76	-3.9
			TIME	-0.361	-1.1	-0.02	-0.4
		Mill's Ratio	CONSTANT	-0.80	-2.5	-0.93	-1.8
			TIME	-0.02	0.5	-0.01	-0.1
		Maximum Lik.	CONSTANT	-0.92	-3.2	-1.27	-2.11
			TIME	-0.02	-0.5	-0.10	-1.0
	Logarithmic	No Adjustment	R-Square		0.001		0.00
			CONSTANT	-0.25	-5.2	-0.23	-3.3
			TIME	-0.01	-1.1	-0.01	-0.5
		Mill's Ratio	CONSTANT	-0.31	-2.6	-0.23	-1.3
			TIME	-0.01	-0.6	-0.01	-0.4
		Maximum Lik.	CONSTANT	-0.13	-1.11	-0.35	-2.0
			TIME	-0.02	-1.01	0.02	0.6
	Reverse Log	No Adjustment	R-Square		0.00		0.00
			CONSTANT	0.201	4.8	0.23	4.1
			TIME	0.01	0.71	0.01	0.6
		Mill's Ratio	CONSTANT	0.24	2.3	0.33	2.2
			TIME	0.00	0.2	0.00	0.0
		Maximum Lik.	CONSTANT	0.31	2.2	0.301	1.2
			TIME	0.011	0.5	0.021	0.6
Covariate Model	Linear	No Adjustment	R-Square		0.011		0.021
			CONSTANT	-0.321	-0.7	-0.371	-0.5
			TIME	-0.05	-1.31	-0.04	-0.7
		Mill's Ratio	CONSTANT	-0.34	-0.5	-0.39	-0.4
			TIME	-0.05	0.1	-0.04	-0.4
		Maximum Lik.	CONSTANT	-0.29	-0.2	-0.03	0.0
			TIME	-0.08	-0.6	-0.13	-1.1
	Logarithmic	No Adjustment	R-Square		0.02		0.02
			CONSTANT	-0.25	-1.5	-0.16	-0.6
			TIME	-0.02	-1.4	-0.02	-0.9
		Mill's Ratio	CONSTANT	-0.21	-0.8	-0.02	0.0
			TIME	-0.02	-1.1	-0.03	-1.0
		Maximum Lik.	CONSTANT	0.19	0.4	-0.21	-0.7
			TIME	-0.03	-0.7	0.03	1.2
	Reverse Log	No Adjustment	R-Square		0.02		0.01
			CONSTANT	-0.03	-0.2	0.06	0.3
			TIME	0.01	0.9	0.01	0.8
		Mill's Ratio	CONSTANT	-0.03	-0.2	0.21	0.7
			TIME	0.01	0.6	0.00	0.1
		Maximum Lik.	CONSTANT	0.45	1.3	-0.21	-0.2
			TIME	0.02	0.7	0.05	0.7

Figure 31 b -- Regression Results for Behavioral Change: San Juan

				Drug Use		Condom Use	
				parm	t-score	parm	t-score
Base Model	Linear	No Adjustment	R-Square		0.00		0.00
			CONSTANT	-0.14	-0.3	-1.01	-2.3
			TIME	-0.08	-0.7	0.06	0.6
		Mill's Ratio	CONSTANT	0.08	0.1	-0.55	-0.7
			TIME	-0.12	-0.7	-0.02	-0.2
		Maximum Lik.	CONSTANT	-0.12	-0.1	-1.14	-0.9
			TIME	0.19	-0.8	-0.01	0.0
	Logarithmic	No Adjustment	R-Square		0.00		0.00
			CONSTANT	-0.14	-0.8	-0.42	-2.5
			TIME	-0.03	-0.7	0.02	0.6
		Mill's Ratio	CONSTANT	-0.08	-0.3	-0.37	-1.2
			TIME	-0.04	-0.6	0.01	0.2
		Maximum Lik.	CONSTANT	-0.05	0.1	0.23	0.5
			TIME	0.01	0.1	-0.06	-0.8
	Reverse Log	No Adjustment	R-Square		0.01		0.00
			CONSTANT	-0.06	-0.3	0.24	1.8
			TIME	0.04	0.9	-0.01	-0.5
		Mill's Ratio	CONSTANT	-0.11	-0.4	0.01	0.1
			TIME	0.05	0.9	0.02	0.5
		Maximum Lik.	CONSTANT	0.11	0.2	0.49	1.8
			TIME	0.03	0.3	-0.03	-0.6
Covariate Model	Linear	No Adjustment	R-Square		0		0.03
			CONSTANT	-0.20	-0.3	-0.50	-1.0
			TIME	-0.08	-0.7	0.05	0.6
		Mill's Ratio	CONSTANT	0.02	0.2	-0.52	-0.6
			TIME	-0.12	-0.7	0.06	0.4
		Maximum Lik.	CONSTANT	-0.40	-0.1	-0.72	-0.7
			TIME	-0.15	-0.7	0.06	0.3
	Logarithmic	No Adjustment	R-Square		0.00		0.02
			CONSTANT	-0.14	-0.6	-0.20	-1.0
			TIME	-0.03	-0.7	0.02	0.6
		Mill's Ratio	CONSTANT	-0.09	-0.2	-0.27	-0.8
			TIME	-0.04	-0.6	0.03	0.6
		Maximum Lik.	CONSTANT	-0.38	-0.8	-0.41	0.9
			TIME	0.02	0.3	0.04	-0.5
	Reverse Log	No Adjustment	R-Square		0.00		0.04
			CONSTANT	-0.06	-0.3	0.08	0.5
			TIME	0.04	0.9	-0.01	-0.5
		Mill's Ratio	CONSTANT	-0.11	-0.4	0.00	0.2
			TIME	0.05	0.8	0.00	-0.2
		Maximum Lik.	CONSTANT	0.07	0.5	0.46	1.7
			TIME	0.03	0.3	-0.05	-1.1

Figure 31c -- Regression Results for Behavioral Change: Juarez

				Drug Use		Condom Use	
				parm	t-score	parm	t-score
Base Model	Linear	No Adjustment	R-Square		0.00		0.00
			CONSTANT	-0.45	-0.7	-0.73	-1.9
			TIME	-0.06	-0.5	0.05	0.7
		Mill's Ratio	CONSTANT	-0.94	-1.4	-0.43	-0.9
			TIME	-0.02	-0.2	0.02	0.3
		Maximum Lik.	CONSTANT	-1.64	-1.5	-0.99	-1.4
			TIME	0.00	0.0	0.07	0.8
	Logarithmic	No Adjustment	R-Square		0.00		0.00
			CONSTANT	-0.32	-1.2	-0.23	-1.8
			TIME	0.02	-0.3	0.01	0.4
		Mill's Ratio	CONSTANT	-0.51	-1.7	-0.19	-1.3
			TIME	0.00	0.0	0.01	0.3
		Maximum Lik.	CONSTANT	0.21	0.7	-0.06	-0.3
			TIME	-0.07	-1.5	0.02	0.3
	Reverse Log	No Adjustment	R-Square		0.00		0.00
			CONSTANT	0.10	0.5	0.21	1.8
			TIME	0.01	0.4	-0.02	-0.7
		Mill's Ratio	CONSTANT	0.21	1.0	0.09	0.5
			TIME	0.01	0.2	-0.01	0.8
		Maximum Lik.	CONSTANT	0.51	1.2	0.34	1.9
			TIME	0.01	0.2	-0.03	-0.9
Covariate Model	Linear	No Adjustment	R-Square				0.04
			CONSTANT			-0.53	-1.1
			TIME			0.05	0.7
		Mill's Ratio	CONSTANT			-0.22	-0.4
			TIME			0.03	0.4
		Maximum Lik.	CONSTANT			-0.60	-0.6
			TIME			0.06	0.5
	Logarithmic	No Adjustment	R-Square				0.06
			CONSTANT			-0.23	-1.4
			TIME			0.01	0.4
		Mill's Ratio	CONSTANT			-0.17	-0.9
			TIME			0.01	0.6
		Maximum Lik.	CONSTANT			0.07	0.3
			TIME			0.02	0.4
	Reverse Log	No Adjustment	R-Square				0.03
			CONSTANT			0.10	0.8
			TIME			-0.02	-0.9
		Mill's Ratio	CONSTANT			-0.02	-0.1
			TIME			-0.01	-0.3
		Maximum Lik.	CONSTANT			0.36	1.6
			TIME			-0.02	-0.1

In each site, up to eighteen regressions were estimated for each of the two criterion variables: frequency of unprotected sexual activity and drug use. There were too few subjects reporting the behavior of interest in some sites to analyze changes in those behaviors, so the some of the columns of Figure 3 1 are empty.

Figure 3 1 reports the coefficient of correlation (R^2) for regressions where no adjustment was made for selection bias. It also reports the parameter estimate and the t-statistic for the constant (CONSTANT) and the degree of program participation as measured by time (TIME). We consider a t-statistic in excess of 1.65 to be statistically significant.[10]

1) Changes in Frequency of Unprotected Sexual Activity

Bridgeport respondents typically increased use of condoms. Prior to adjusting for selection bias, and before introducing covariates, the absolute value of the t-statistic associated with the regression's constant term is consistently greater than 3.0 (Figure 31a). The size of the t-score drops when controls are introduced for selection bias, but it remains greater than 1.65 in all but two regressions. Furthermore, the parameter estimate does not change much when corrections are made for selection bias, suggesting that selection bias cannot account for the apparent increased use of condoms. The absolute values of the t-scores drop precipitously when covariates are added to the model, but this presumably means that the overall increase in condom use is not distributed uniformly over the subject population. The evidence is encouraging that Bridgeport respondents have increased their use of condoms.

However, there is no evidence that program participation per se led to increased use of condoms. The effect associated with the variable "program participation time" did not approach statistical significance in any of the 12 regressions. Furthermore, the explained variation is never greater than 0.02. Thus, we conclude that the extent of actual participation (as measured as time in intervention activities) in the Bridgeport intervention does not predict behavioral change in the use of condoms. It must be noted, however, that some unmeasured effect -- for example, increased awareness of HIV or simply the program's existence -- helps to account for the observed behavior changes.

As was true in Bridgeport, there appears to have been a reduction in unprotected sexual activity among respondents in San Juan. Prior to correcting for selection bias, and before introducing covariates, the t-score associated with the regression's constant term was at least 1.8 regardless of how

[10] Error terms are heteroscedastic when Mill's ratio is introduced into the regression, but standard errors were estimated using a heteroscedastic consistent procedure. Standard errors from the Mill's ratio approach and from the maximum likelihood approach are asymptotically distributed as normal, and caution should be exercised given the small samples employed in some of these regressions.

the criterion variable was transformed (Figure 31b). This effect was attenuated considerably when adjustment were made for selection bias, so the evidence should be considered as only suggestive.

The regressions provide no evidence, however, that active participants were more likely than passive participants to reduce unprotected sexual activity. The t-score associated with program participation is never larger than 1.1 in absolute value and is generally considerably smaller.

Respondents from Juarez report similar behavioral changes. Before correcting for selection bias and before introducing covariates, the t-score associated with the regression's constant term was at least 1.8 regardless of the transformation used (Figure 3 Ic). Adjustment for selection bias caused the t-scores to be considerably attenuated, but evidence persists that behavioral change was occurring.

Beyond this general improvement in the use of condoms, there is no evidence that active participants improved their behavior more than passive participants. Again, however, it is worth noting that unmeasured program effects could have helped produce the positive behavior change.

2) **Drug Use**

In Bridgeport most of those who completed the AFA reported that they had reduced their drug use. Prior to correcting for selection bias, and before introducing covariates, the CONSTANT always had a t-score in excess of 4.8, regardless of the way that the criterion variable was transformed (Figure 31a). The effect remained strong when adjustments were made for selection bias (although one of the six t-scores was only -1.1). The t-statistics were weakened considerably by the introduction of covariates, perhaps indicating that the behavioral changes were not distributed uniformly over the pool of participants.

But active program participation does not seem to have had a strong effect on drug use. The parameter estimate associated with the variable TIME never approached statistical significance regardless of the variable transformation used, the adjustments for selection bias, and the introduction of covariates.

There is no evidence that San Juan drug users altered their drug using practices. There is some evidence that Juarez respondents reduced their drug use. However, the effects are small (perhaps because of the small sample size) and it appears doubtful that these effects could be attributed to program participation *per se* (Figures 31b and 31c).

3) **Discussion**

Caution is required when interpreting these results. The data are poor; the variables of greatest interest (risky behavior) are reported with marked imprecision, and the sites were not consistent when reporting the extent of client participation. Moreover, certain types of general program effects

remain unmeasured in the analysis. Sample selection is a potential problem as subjects self-select whether to be active or passive participants and they self-select whether or not to answer the AFA. Although we introduced some adjustment for dealing with the latter problem, those adjustments were no panacea, and we were unable to introduce any adjustment for dealing with the first form of selection bias.

Nevertheless, were the program effects large they probably would have been detected in this analysis. Indeed, program participants seemed to reduce their risky behavior, although these changes did not seem to be associated with the degree of program participation. Perhaps there is some room for optimism here, but two caveats are required.

First, we cannot differentiate between actual behavioral change and subject's incentives to say they have changed their behavior when in fact their behavior remains the same. Surely there is some cost to a subject of admitting that she persisted in behavior that both she and the interviewer recognize as risky. How much of the reported favorable behavioral adjustment is real, and how much is fiction, is a matter for speculation.

Second, accepting the behavioral change as real, the effects may not be sufficiently large to assure that even subjects who have reduced their risky behavior have done so to the extent that their chances of infection have been greatly reduced. Even if the program effects are judged to be large, they do not seem to be attributed to the intervention per se. We see no evidence that those who actively participated in the programs (measured as time spent in intervention activities) performed better than those who participated minimally or not at all. However, unmeasured program effects -- such as increased awareness and the very existence of a program that seemed to care for women often ignored in the past -- may have helped to produce some positive behavior change.

Thus, the conclusion regarding lack of statistical program effect based on amount of program participation does not mean that the programs were of no value. As has already been demonstrated, there is anecdotal evidence that particular participants were greatly aided by the interventions in reducing their risks for HIV infection and improving their lives. Moreover, as shown in the crosstabulations (Figures 24-30), substantial behavioral improvement did occur among those women contacted by the three programs. It may be that many of those most ready and/or able to make changes did not need as much intervention, while those with more deep-seated problems tended to participate more but showed less dramatic change over the relatively short period of the interventions. Indeed, one may seriously ask how reasonable it is to expect significant change in often deep-seated sexual and drug-using behaviors after a few hours of intervention activity over a six-month period. The available data cannot support the fine-

grained analysis more likely to reveal the marginal and perhaps transitory behavior change that much research" suggests is the typical achievement of programs seeking to reduce HIV risk behaviors.

Finally, our results raise important methodological issues regarding the evaluation of HIV prevention programs, and perhaps other program evaluations as well. The results suggest the potential peril involved in simple comparisons of baseline and post-program behaviors without reference to actual program participation. First, any investigation of the association between behavior change and program participation requires collection of program process data and use of the individual subject as the unit of analysis.

By contrast, evaluations which, for example, simply compare the aggregate behavioral profiles of populations of AIA respondents and AFA respondents both obscure patterns of change occurring at the individual level and make it impossible to use individual program participation as an independent variable in the analysis. Moreover, such analyses preclude proper consideration of selection bias at various stages of program participation. The version of the aggregate analytic approach which simply compares all AIA respondents to all AFA respondents is particularly flawed in terms of selection bias, but the version which compares aggregates in linked AIA and AFA respondent populations is also problematic. The analyses we have presented may yield more "messy" and perhaps unsatisfying results, but we believe they are more rigorous and ultimately more accurate in their statistical appraisal of program effects.

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[11] See, for example, L. Dengelegi et al., "Drug Users' AIDS-Related Knowledge, Attitudes, and Behaviors Before and After AIDS Education Sessions," *Public Health Reports,* September-October 1990; 105: 504-510; J. Guydish et al., "Changes in Needle Sharing Behavior Among Intravenous Drug Users: San Francisco, 1980-1988," American *Journal of Public Health,* August 1990; 80: 995-997; R. Stephens et al., "Effects of an Intervention Program on AIDS-Related Drug and Needle Behavior Among Intravenous Drug Users, American *Journal of Public Health,* May 1991; 81: 568-571; D. DesJarlais and S. Friedman, "Editorial Review: HIV Infection Among Intravenous Drug Users: Epidemiology and Risk Reduction," *AIDS* 1987; 1: 67-76. On gay men, see, for example, M. Ekstrand and T. Coates, "Maintenance of Safer Sexual Behaviors and Predictors of Risky Sex: The San Francisco Men's Health Study," *American Journal of Public Health,* August 1990; 80: 973-977.